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No.....

PLANTING OPINION.

A WEEKLY JOURNAL

(WITH MARKET SUPPLEMENT)

WRITTEN BY PLANTERS FOR PLANTERS.

1898.

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SUBSCRIPTION.—Advance Rates: Yearly, Fifteen Rupees; Half-yearly, Eight Rupees; Quarterly, Five Rupees, and Monthly, Two Rupees, including postage. Single Copies, Eight Annas.

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N.B.—Remittances should be sent to the Manager, "Planting Opinion," Esplanade Row, Madras.

IMPORTANT NOTICE.

The Business Offices of this paper having now been removed to Madras, all remittances should be made payable to the Manager of *Planting Opinion*, 3, Esplanade Row, Madras, who will also attend to all advertisements, &c.

Letters to the Editor should be addressed to Coonoor, as usual.

SEASON REPORTS.

NOTICE.

TO OUR SEASON REPORTERS.

Please post your next reports to reach Madras on Friday, the 14th January, 1898.

Kadur.

MUDIGERE, 29*th December* 1897.—*Weather.* Fine, and no rain clouds about. Rain now, though it would help to ripen crop, would force spike and wood, with a chance of three hot months before us. *Crops.*—Picking still going on on most estates. The bean is very good this year, with a fair amount of pea-berry. *Plant-diseases.*—Old *Hemelia Vastatrix* is spending Christmas with us. Bad luck to him. *General Health.*—The festive season has been saddened by the news of Mr. Digby Brett's death at Koppa—a man so well-known and much-loved by all in the district. He was for many years the President of the North Mysore Association.

S. E. Wynaad.

DEVALA, *5th January.—Weather.*—From the 22nd to 29th December at nights very cold, and during the day the sun shines very brightly. On the 30th December we had rains both day and night, and since it is very cold at night and hot during the day. *Crops.*—The stripping is finished, and the paddy harvest among the ryots is in full swing. Grain: salt 8, rice 8, cholum 18, and ragi 18 seers per rupee. *Health.*—Fever is very prevalent. *Labour.*—Sufficient.

Nellampatty (British).

5th January.—Weather.—Clouds began to gather on 26th, and the strong land wind which had been blowing ceased. On the night of 30th December, 90 cents fell here, but some places got much less, and I fear no good will result from it as far as next year's crops are concerned. Here it is all right for clearings. *Coffee.*—In most cases two-thirds are gathered, and in a few cases pruning is being done. *Plant-diseases.*—Coffee looking very fit everywhere. *General Health.*—Good, save for colds. *Labour.*—Plentiful. A great many estates will pay off at the end of January this year, I hear. *Interesting Items.*—Christmas festivities are over, (thank Heaven!) and we are again settling down to the usual routine. On New Year's day the bachelors entertained the married folks at a picnic, which was a great success, and the general wish is, Many happy returns of the same.

Nilgiris.

KOTAGIRI, *7th January.*—The rainfall due for the last quarter of the year is—

in Oct.	in. 14·19	28·03
„ Nov.	„ 9·98	
„ Dec.	„ 3·86	

which is very nearly equal to the rainfall due for three-fourths of

the year, from January to end of September, but the N.-E. Monsoon hardly made any show; it was marked by long spells of fine weather in October and November, and December was especially dry and cold. The rainfall gauged here was only

in Oct. in. 4·40
„ Nov. „ 5·32 } 11·72
„ Dec. „ 2·00

and although the fall was ahead of the average due by end of September, the year closed, owing to the failure of the N. E. Monsoon, with a total of only in. 54·14 against an average due of in. 58 92. *Crop.*—Where there is any, has been coming in steadily, free from rushes, most estates having over ½ in by X'mas day; it runs heavy, and estates generally into the three figures show a markedly good outturn this season.

NOTES.

Tea-seed in Ceylon. If all the seed imported in Ceylon this season is planted up, the increase in acreage will be enormous, well over 30,000 acres; and this, too, in face of a rising exchange and a falling market.

Coffee in Queensland. A Russell River planter recently sold some three tons of coffee in the local market at 9*d.* per pound in parchment. It is stated that even at 6*d.* per pound, a good margin of profit would remain!

Wara fibre (Calatropis gigantea). Some ten years ago a sample of this fibre was sent home from Ceylon, and was valued at £36 to £38 per ton, being classed as equal in value to the finest rhea. It grows well in low-country districts on poor soil.

Indian tea exports. The total exports from Calcutta from the 1st April to the 30th November, 1897, were a little under 113½ million pounds as against 112⅓ and 104½ in 1896 and 1895, respectively. The total Ceylon exports from 1st January to 16th November, 1897, were 98⅕ M. against 92¾ M. in 1896. The sailings of Indian tea to Australia are about 300,000 lb. more than last year.

Tea-sales in Colombo. When public sales were commenced in Ceylon in 1890, the amount disposed of was nearly 6 million pounds, or 12·7 per cent. of the total shipments. In 1894 it rose to over 15¾ M., or 18·6 per cent., while in 1897 the *Times of Ceylon* estimates it as exceeding 26½ M., or 22·7 °/₀ of the whole. In 1896, however, the percentage was slightly greater, being 23 per cent. of the total shipment.

Coffee in East Java. It will not be long ere East Java will come into the prominence it deserves as an exceptionally good coffee country. While labour is still high, it has been reduced from 90 cents per day to 50, or say 10*d.*, while crops are excellent. The land is rich, the labour good if expensive, easy rent and taxes, nothing to pay for five years, and then about 2*s.* 3*d.* per acre rent with 2 per cent. tax on produce and the prices A 1.

Annatto. Prices for annatto (the seed of *Bixa orellana*) are rising, and planters might profitably take up the cultivation of this shrub on a small scale. Sides of roads, bits of abandoned land and so on could be used for the purpose at a small expense. The demand is not unlimited it is true as in the case of many other minor products, the yield from a number of products more or less insignif in themselves would add sensibly to the profits der from the staple.

Banana flour. *Apropos* of our recent artic Banana flour, it is mentioned late number of the *Borneo Herald* that the Perak Resid Annual Report for 1896 states that an experimental e prize for the production of this commodity was starte one of the European Coffee planters in that State du the past year. The Resident writes hopefully of th pected result, and we shall watch the outcome with interest. The secret of success seems to be in effi dessication of the fruit before pulverizing it.

Mexican plantations. In spite of the phenomenal pression in the prices of Ame coffee, a great deal of energy is being displayed by Bu syndicates in the exploitation of Mexican coffee-lands large London Syndicate, named "The Mexico Produce Estates Syndicate" has recently been formed, with offic 138, Winchester House, London, E.C., who have deputed experienced Ceylon planters to report on the capabiliti the country. If their report confirms others already in hands of the Syndicate, operations on a very large scale expected.

The maple tree. Attention is being drawn no the commercial value of the m tree in Canada, remarks the *Produce World*. It w certainly appear that as an increasing source of produc business, the maple is not properly understood. It is st on good authority that maple trees, when the sap is corre treated, yield quite ten dollars per acre. Besides this, t is the value of the timber too. Exports of maple su have already been made to the amount of about $50,000 annum, but this is a trifling revenue to what might obtained.

The cross-cut saw in clearings. We were surprised to note i Upper India contemporary that supposed by tea planters in As and Cachar that cross-cut saws are only useful for cut matured timber. An absurd fallacy this, which we are to note the *I.P.G.* has exposed. We would remark, howe that it signifies nothing whether the trees be perpendic or slanting, small or large in girth; cross-cut saws ca far quicker and neater work than axes. The only thin be remembered is to have the teeth set properly and to enf upon the coolies the necessity of *pulling* and not push the saw while cutting.

The B. C. A. planting industry. The planters of British Cen Africa have something at leas be thankful for, in that the Gov ment recognizes the importance of the industry to extent of engaging botanists, or rather an expert a horticulturist, on their behalf. Besides undertaking general analysis of soils, he will analyse new produ investigate plant diseases and so on. We note that local Chamber of Agriculture and Commerce have as

their Government to establish an experimental estate in order to test in a practical way the suitability of economic plants for cultivation in B. C. A.

Book-keeping for young planters.

A correspondent writes us as follows: "I should be much obliged if you could let me know where I could get a simple method of keeping estate accounts, including check roll, cash book, ledger and journal. I got a book from you [A Ceylon book.—ED.] on book-keeping in Ceylon, which, however, does not enter into the details of check roll keeping." We would suggest our correspondent applying to his nearest neighbour for instructions as to keeping his check roll, pay list, cash book. Ledgers and journals are rarely kept on estates, but if he studies the work, he mentions, he will find full instructions.

Trade allowances on half chests of tea.

Writing to an exchange, a correspondent makes the following very sensible suggestions:—

"One pound per package on full chests amounts to, say, 1 per cent., each chest containing roughly 100 lb. tea, but 1 lb. a package on half-chests amounts to 2 per cent. This is most unfair for several reasons. Packing in half-chests is more expensive per pound than in full chests. Half-chests are more suitable for grocers, and, therefore, more attractive for buyers. Several producers are obliged to pack in half-chests, owing to the distance they have to send their tea on coolies' heads to the nearest cart road. Thus, in fairness, half-chests should be taxed at a lower rate in London, as they cost more in proportion than full chests; at any rate they should not be taxed by the buyer at a *higher* rate than full chests, which is being done at present."

Vanilla.

Cultivate vanilla, wherever soil and circumstances permit, is the advice to be gathered from the report of Mr. H. Cockburn Stewart, Administrator of the Seychelle Islands, who, in forwarding his annual report, gives special prominence to the vanilla industry, which is experiencing quite a boom. The crop last year was the largest on record—63,000 lb., and the prices obtained on the London and Paris markets were such as to delight the hearts of the cultivators. "Nothing pays better than vanilla," remarks the head of the local Government, and when the islands are still further opened up by roads, he anticipates a large increase of the acreage under vanilla cultivation.

New Zealand hemp: (Phormium tenax.)

The hemp industry is rapidly developing in New Zealand, and seems to be a highly remunerative business to both growers and manufacturers. Of late prices have been falling, and a Commission has just been appointed to enquire into the causes of the fall, and to ascertain whether the industry could not be further developed. In 1870 5,470 tons of the fibre were exported, of the average value of £24; in 1880 both quantity and value fell enormously, 915 tons being exported, valued at £17 per ton. In 1890 the export rose to 21,158 tons with the slightly increased value of £18. Good grades have been sold as high as £38 per ton. The chief need is a machine to prepare and sort the fibre efficiently, to meet which a prize of £1,750 was offered up to the end of last year.

Rubber plantations in Sumatra.

Numerous India-rubber trees are growing on the east coast of Sumatra in a wild state, and the natives have collected large quantities of rubber to the great damage of the rubber-trees, which have become debilitated and in some cases extinct. Within the past few years, wealthy Holland companies, says the *India Rubber World*, have created rubber plantations, and in the Kasim district a not unimportant market in Sumatra rubber may be expected in the near future. An idea may be had of the remunerativeness of such plantations when it is guaranteed by the directors of the companies that 100,000 rubber trees will clear annually, above all expenses, from 500,000 to 600,000 marks. The editor of the *Gummi Zestung*, in which we find this note, expresses very grave doubts of such figures being realized.

Nutmegs.

A tree that might be profitably introduced on plantations not over 4,000 feet is the nutmeg, which grows and crops luxuriantly in the Burliar (Nilgiris) Experimental Garden:—

"They grow on small trees generally not over twenty feet high. The flowers are very much like lilies of the valley. They are pale in colour and very fragrant. The nutmeg is the seed of the fruit, and the mace is the thin covering over the seed. The fruit is about the size of the peach. When ripe it breaks open and shows the little nut inside. The trees grow on the islands of Asia and tropical America. They bear fruit seventy or eighty years, having fruit upon them all the season. A fine tree in Jamaica is said to have over 4,000 nutmegs every year. The Dutch used to have the whole nutmeg trade, as they owned the Banda Islands, and conquered all the other traders and destroyed the trees. To keep the price up, they once burned three piles of nutmegs, each of which was said to be 'as big as a church.' Nature did not sympathise with such meanness. The nutmeg pigeon, found in all the Indian islands, did for the world what the Dutch had determined should not be done—carried the seeds, which are their food, into the surrounding countries."

The local price at Burliar, we may mention, is three annas per dozen.

Wash-holes and prunings.

An old planter writes strongly to the *Ceylon Observer* on the subject of preventing wash. Water holes he condemns as not only being absolutely useless, but positively harmful. The holes in question were 3 feet $\times 1 \times 1\frac{1}{4}$; unluckily the distance apart is not given. We feel convinced that if done between every few trees as in South India, the disastrous results he relates would have been altogether avoided. He writes:—

"There came a heavy downpour of rain, after a few days light rain: here and there, one of the holes became full and commenced to run over; this caused the next one below it to do the same with increased volume; each succeeding hole added volume and force to the rush of water. Hundreds of tons of soil were washed away, down into the drains, roads and ravines. The lines in that field ran as perpendicular as the hill would permit; consequently the scour was chiefly down between the lines of trees, but in many places the trees were left on stilts! I give this one particularly bad instance. But I can point out hundreds of acres of land now in tea (formerly in coffee when the holes were cut) and the ledges still remain (two feet square or so) showing what was the bottom of the old holes; there being the original hill slope between these ledges. All the soil excavated was soon washed away, once the holes began to fill and became shallow enough to run over in wet weather."

China's prospects.

In a lecture before the London Chamber of Commerce, Mr. George Jamieson, H.B.M.'s Consul at Shanghai, said: "It is asserted, and I do not doubt it, that if foreigners were allowed to introduce machinery into the tea-growing districts and superintend the preparation of the leaf, China tea could even yet hold its own against the best that India and Ceylon can produce. But no such prospect I am afraid

can be held out. The treaty gives us the right to buy from the Chinese such tea as they prepare, but not to grow and prepare it ourselves. I was consulted, just before leaving Shanghai, by a small syndicate who were very desirous of getting machinery introduced into one of the large tea-growing districts as an experiment. The proposal was to co-operate with a native company, who would be the owners of the plant, and employ as superintendents the necessary foreign staff. The plan seemed feasible enough, but it came to nothing. The native teamen had not the courage to risk their money. They did not know what the officials would say, or probably enough they got a hint that the officials would not have it, and so the whole thing fell through."

A New York-Indian line.

A regular direct steamship service between New York and India has been arranged for, the first sailing being set for November 27th by the *Sahara*, a vessel of 4,089 tons, going *via* the Suez Canal, and taking freight for Aden, Persian Gulf, Bombay, Malabar Coast, Ceylon, Madras and Calcutta. She will be followed by monthly steamers. The new service is of especial interest, inasmuch as it is the first direct regular line to India from New York. Most India business has heretofore been handled *via* Great Britain and Mediterranean ports, with occasional sailings by tramp vessels. The new line is established with the definite purpose of developing trade, the agents and managers believing that present trade conditions were ripe for the enterprise, and also feeling confident that with regular facilities the trade will increase. The advantages will be especially felt by American manufacturers, who can thus sell on samples, and conduct their business with greater convenience. The outward cargoes will naturally be of a more or less general character, but steel rails and railroad material will figure as one of the most prominent items. Bucknall Bros., of London, are the managers of the new line, and Norton & Son the New York agents.

Essential oils.

Considerable attention is now being paid to cultivation of flowers for manufacture of essential oils, especially in such countries as Victoria, where climatic conditions are such as to make this industry profitable. In an article contributed to a contemporary, W. Lodian, C.E., recommends a more extensive cultivation of flowers in India, and considers it probable that, with combined advantages of cheap labour and good climate, such an industry would be profitable in this country. At present, many essential oils used in Europe are obtained from France, Italy, and America—United States. Some prices are quoted as value per acre under cultivation, of some commoner flowers; bitter-orange blossom, £60 to £80; jasmin, £20 to £30; roses, £70 to £90, and peppermint, £45. Mr. Lodian gives a short account of methods usually adopted for preparation of essential oil, such as "enflourage" process and extraction by methyl chloride, special attention being directed to points which are likely to be overlooked by a beginner. Farmers are also recommended to keep themselves well acquainted with modern literature on this subject, in order to be able to take advantage of various improvements suggested by experts from time to time.

Estate and London bulking.

From the abstract of the proceedings of the General Committee the Indian Tea Association, dat 6th December 1897, we note that in his letter of 22 October the London Secretary stated that Mr. Lipton h asked him for an official explanation as to the meani attached to the words "bulked in the country of produ tion," which now appears in clause 4 of the Public Sa Condition, and he had replied that it was now provid that all teas sold under these conditions should be proper bulked either in the country of production or in Londo so as to allow a fair sample to be drawn of the whole brea out of any individual package, and he pointed out that t operation of "bulking in the country of production" w understood to be precisely the same as "bulking in Lo don," but the tea having been packed while fresh off t fire should be in a much better condition to retain i strength, freshness and flavour than if exposed for a da or longer, to the damp atmosphere of the London Docks.

It was decided to issue a further circular to all membe on the subject of bulking in the factory, and the matt was to be again brought up for discussion next season.

In his letter of 12th November, the London Secreta enclosed copy of a letter from Messrs. Davidson & Co., which that firm wrote: "We feel confident that in the cour of time, if the bulking is attended to carefully on t estates, re-bulking will be done away with entirely London."

The Quarterly Sales of Cinnamon.

At the public sales held Monday, the 29th November, a mo than usually large quantity Ceylon was offered, says the *H. & C. Mail*, embracing 3,1 bales altogether, of which the bulk, about 2,500 bales, co sisted of "unworked" parcels, and these were disposab only at a reduction of ½*d.* to 1*d.* per lb. from the rates pa in August, ranging from 7*d.* to 11*d.* and 1*s.* 1*d.* for coars woody, and thirds to fine firsts and superior. The sma proportion (between 500 and 600) "worked" cinnamo however, met a far better reception, and was briskly co peted for at stiffening prices. Favourite marks especiall commanded higher prices, to 2*d.* above the former quot tions, and for a single lot of extra choice quality a rise 6*d.* per lb. was obtained at 2*s.* 4*d.* Other garden growt fetched 11*d.* to 1*s.* 7*d.* for ordinary to finest firsts; 10*d.* 1*s.* 4*d.* for seconds, with superior plantation ditto at 1*s.* 7*d* also 9*d.* to 1*s.* 5*d.* for common to very best thirds; and 8½ to 1*s.* 3*d.* for low to fine fourths, with broken (in eig boxes) at 10*d.* to 11½*d.* per lb. Cinnamon chips exhib larger clearances for the present year, and only moderat stocks are left over; but 1,010 bags put forward went o without any noticeable improvement in value; chips at 3 to 3¼*d.* with clippings, cuttings, quillings, pieces, and broke quill from 9*d.* to 11½*d.* to 1*s.* 1*d.* per lb. The series periodical sales for 1898 are arranged for Mondays of th following dates: February 28, June 6, August 29, an November 28.

The low price of coffee.

The price of the lower grades coffee has not been paralleled sinc 1848, says the *Grocer* of 4th ultimo. In America, where th supplies are drawn from an area less wide than ours, th depression has caused anxiety, and our American Exchange

have recently been somewhat exercised about it, prices of Brazil coffees having ruled lately at the lowest figures recorded in the history of the trade. In December, 1882, February delivery sold in New York at 5·24 cents, but since that date until the current year the range has been from 6⅞ cents to 19 cents. This year a gradual decline set in, and three weeks ago November was quoted on the New York Exchange at 4·45 cents. The explanation of the decline is, of course, the large supply. There have been two consecutive large crops, and the promise of a third. Large profits some years ago induced the Brazil growers to plant immense numbers of new trees. It takes five years before a coffee tree produces; but the new trees are now coming into bearing. Although the world's visible supply is large, being estimated at 6¼ million bags a month ago, as compared with 3¾ million bags last year (the largest since 1890), the indications are for a further increase, and it is expected that the enormous number of seven million bags will have been received in the States by next New Years's day. The estimate of the current crop is over nine million bags, whilst that of next year is also expected to be large. Thus far the present year has surpassed last, which was the largest ever known. There is, therefore, every probability that the American dealers will have to lay their account with a continued prevalence of cheap coffee.

Croton tiglium.

The seeds of the *Croton tiglium*, a plant which grows wild all over Lower and Eastern Bengal, according to the *Planter*, are now in large request and are sold at home at £1 per 1000, and larger quantities at reduced rates. It remains to be discovered, however, what has created the present demand for them, for this appears to be a trade secret so far. The plant will grow and thrive on any soil, no matter what the quality of it, and there is no reason why its cultivation should not be introduced on abandoned portions of plantations. It will be a wise precaution, though, to ascertain whether the price of the seed is susceptible of any material variation in the market. The seeds are known to be of a very unctuous nature and there would consequently be considerable loss in weight in transit to foreign markets, due to fermentation. The better plan would be to export the oil which is extracted from the *croton pavana*. There would be an additional advantage in following this method as the oil-cake obtained in the process of seed crushing would find a ready sale as manure. It must be remembered, however, that on account of its highly poisonous nature it is not used to feed cattle on. Doctors and druggists know the value of the oil as well as its efficacy in certain maladies to which humanity is heir, a single drop being sufficient, which no doubt enhances its value. The tree will grow from the sea level to an elevation of 3,000 feet and even over. Once a week a cooly shakes the tree and picks up from the ground what has fallen off, puts the pods in the sun, shells them, and gives another drying, which is all that is required. A net profit of about one shilling per tree per annum has been realized from full grown trees.

A large Company.

The most ambitious Ceylon tea company that has yet made appeals to the British investor, says the London correspondent of a Calcutta exchange, is the General Ceylon Tea Estates, Limited, which has an authoized capital of no less than £400,000 and invites subscription besides for £140,000 five per cent. Debentures. The capital is divided equally between five per cent. Preference and Ordinary shares, of which £135,000 Preference and £115,000 Ordinary are now to be issued. The purchase price of the estates is fixed at £363,500.

There is in the prospectus an elaborate hypothetical estimate of profits, which when molten down comes to this: if the tea is sold at an average price of 7½*d.* per lb. and is laid down in London at 5*d.* (including all costs of sale) there will be 2½*d.* per lb. profits, assuming that this hypothetical (one might say, prophetical) estimate prove correct, the purchase price is ever so more than eleven years purchase and, in view of recent results, far too high. But the estimate is distinctly open to criticism. Under the head of coffee we learn that the profits from 143 acres are estimated at £2,686 or over £18 per acre. If the gross value of the coffee produced amounts to that sum the proprietors of the 143 acres will not have done amiss. Then there are large sums (£2,500 and £1,700 set down as the annual profits on sales of tea seed, and on the purchase and manufacture of teas from adjoining estates, respectively. In support of these figures we have nothing more tangible than that "from a careful consideration of the figures given in connection with the estates the Directors consider that the calculation is a reasonable one." Apart from this assurance of the Directors, which surely it would have been well to support with more than the one single fact that the tea crops of the estates to be bought were last year 1,896,917 lb. I should have been disposed myself to estimate the profits, by comparison with what has been done on other properties whose accounts have been published, at little more than half the figures given: and I should be inclined to fear that even the £15,100 necessary to pay Debenture and Preference interest might not be forthcoming.

Aspect for coffee plantations.

Experience has demonstrated, says the Coorg correspondent to the *Planter*, that for coffee a Western is superior to an Eastern aspect. A Northern is best of all, especially if it is protected by a ridge from the sweeping gusts of east wind which prevail at this time of year, in spite of the fact that Mr. McIvor, of Cinchona fame, held the opinion that a Southern aspect was undesirable for growing cinchona, coffee, &c., owing to its being subject to extremes of temperature, because during the sunny months the sun has a Southern declension, and it is therefore exposed to the full force of the sun's rays during the day, while during the night it rapidly radiates its heat and becomes so chill as to be harmful. In spite of this expert's opinion a Southern aspect hereabouts, if protected from the east wind, is superior to an Eastern aspect. If unprotected, it is probably worse. It will be correctly inferred from what has been said that it is the dessicating east wind that makes all the difference between one aspect and another. It appears to peculiarly favour the hatching of the borer insect's eggs. Parts exposed to the full force of its baneful influence, if not adequately protected by shade, have been completely wiped out, probably because the trees are blown to ribbons, and the stems and the ground become fully exposed to the sharp rays of the morning sun, which, in conjunction with dessicating effects of the wind, are sufficient to promote the

requisite temperature for the successful hatching of the borer insect's eggs. It is of the utmost importance, therefore, that all parts exposed to the east wind should be well protected by shade, and when thinning out shade, the utmost caution is exercised in all such parts, much more shade being left upon them than on the other parts.

Writing on the same subject, the well-known Ceylon planter, Mr. E. Ernest Green, draws attention to the little understood fact, especially in the Island, that forking, properly carried out, actually prevents wash. Clods must not, however, be inverted. The fork should be driven in to its full depth, and the soil merely loosened. The chief cause of wash is the inability of the rainwater to penetrate the ground fast enough when the surface soil is firm and close. Directly the soil is loosened by the proper use of the fork, the rain will soak in as it falls, and there will be no accumulation of surface water to rush down the slopes transporting valuable soil in its progress. The plants also will benefit by the well-known valuable properties of rainwater and by the more perfect aeration of the soil. In connection with both the prevention of wash and the closing of drains, Mr. Green draws attention to a very novel plan that he has been lately adopting, and which has so far proved most satisfactory. This is, to fill up all the drains evenly with the prunings immediately after a field has been pruned. Paradoxical as it may seem, this really prevents the disastrous blocking of drains that so often occurs during a heavy plump of rain. There can be no accidental heading back of water. Any solid matter that falls into the drain rests where it falls—above the prunings—and is not carried along to form a dam at the first obstruction. The water filters through the rubbish, depositing any soil it has brought down, and trickles slowly away below, much of it finding its way into the subsoil. The repeated clearing out of drains is no safeguard against a block. The cleanest drain is at the mercy of the first rock that rolls down the hill. He pleads the following advantages for his method :—

1. The saving of soil: the water being filtered in its passage through the rubbish.
2. A great saving in expense: there being no necessity to clear out the drain until the time for the next pruning, when the accumulated soil and decayed vegetable matter will be spread over the surface below the drain, and the drain will be recharged with the new prunings.
3. The avoidance of any accidental block at one spot, with its consequent leading back of water and overflow.
4. Benefit to the tea by the freer percolation of water in its slower flow along the drain; and by the application of accumulated soil and humus.
5. The convenient disposal of the troublesome prunings.

COFFEE SHADE TREE.

Sun-dried Erythrina Lithosperma loppings, &c., contain per ton :—

61·50 lbs. Nitrogen.
57·38 „ Potash.
14·92 „ Lime.
13·68 „ Phosphoric Acid.

Seed cured under Messrs. Sutton and Sons' advice.

Orders should be booked early for the coming crop of seed from the parent trees of above analysis at Rs.6 per pound containing about 2.000 seeds. *Germination guaranteed.*

Only thornless variety extant, and is not procurable anywhere save from the

MANAGER, ARIENKOW ESTATE,
Shencottah.

LETTERS TO THE EDITOR.

TO REAR DUCKS.

SIR,—Can any of your readers tell me how to rear duck I get the ducklings *hatched* all right, but they gradually die one, two or more a day; and out of over fifty, I havn't reared this year. I don't let them run about much, and feed them ragi, bran and the "nootchoo" of rice. They get a sort "staggers," and die slowly.

DUCKLING

WORMS IN COFFEE ROOTS.

SIR,—I thank "D." for his letter in reply to my que and regret that, through one cause or another I have been delay in replying to him. The day after the paper with his let came, I "shikareed" for the worms, and managed to secure fo of them, more dead than alive. These I meant to send to you spirits, but a neighbour turning up just then I forgot, and ne morning they were dead and dried up like sticks and fell pieces when handled. Shortly after my letter to you I w advised to try lime for the trees—a large handful, well "kubike in round the plant; this I did with evidently the best results, the damage has stopped spreading as it was doing before, a plants that were only beginning to droop are fast recoveri Some were, I fear, too far gone when the lime was applied, a are dead or dying. Two or three times I have taken up pla that were looking sick, and in all cases found the roots had be eaten as I described in my first letter, but only once found t worm, and it was almost dead, and I think past doing furth damage. The clearing in which this pest appeared had be *lightly* burned last year. No manure was put to the pits whi were filled with black jungle soil scraped from all around the If I again find the worm, I shall at once put it in spirit a send it to you.

On one tree's roots I found the skeleton of a large grub, a on another occasion found in a pit two little white grub, b although grub may have had a hand in it, I am convinced t damage was done mostly by the worm I described, and that t liming has saved a lot of good plants. I shall be glad to ha the opinions of others on the matter.

"YOUNG PLANTER."

TERRACING vs. DRAIN-CUTTING.

SIR,—In response to your invitation to give comparati estimates of the cost of terracing and of drain-cutting in h plantations, I send you the following :—

The cost of both systems depends on, and increases wit the steepness of the hill slopes to which they are applie Assuming an AVERAGE slope of 1 in 2, or 30°, which is, if an thing, above the actual average of ordinary plantations, a taking a width of four feet for each terrace, or, say, fifty terrac to an acre, the area of cutting an earthwork required to gi a horizontal width of four feet would be that of a triang whose base was equal to two feet, *i.e.*, half the width of t terrace, and whose height was equal, at the assumed slope, one foot. This area is one square foot, and would represe the cutting required to form the inner half of each terrac The outer half, of equal area, would be formed by the sp earth excavated from the inner half, and would not be separate paid for. Consequently the amount of earthwork required be paid for to terrace an entire acre would be $50 \times 210 \times 1 = 10,5$ cubic feet, and there would be no annual maintenance.

Now to provide the same area, at the same slope, with a syste of drains placed 40 feet apart, and capable of carrying off a fo depth of water with two square feet of waterway, the area cutting required for each drain would be about three square fe And assuming a single cross or up and down drain to each ac the total number of drains would be six. Consequently t earthwork or excavation required to be paid for to drain o

acre would be $6 \times 210 \times 3 = 3,780$ cubic feet. If these drains are supposed to be annually cleared of an amount of silt only just equal to their capacity, the total earthwork required to be paid for in only two years would be $3,780 + 2 \times 3,780 = 3 \times 3,780 = 11,340$ cubic feet, or 8 per cent. greater than that of the terracing. Under the same conditions with a 1 to 1 or 45° slope in the soil, which is about the steepest that would ever be cultivated, the quantity of earthwork to be paid for in terracing an acre of land would be $50 \times 210 \times 2 = 21,000$ cubic feet, while to cut drains in it the quantity would be $6 \times 210 \times 4 = 5,040$ cubic feet, so that in three years' time, with the assumed proportion of silt clearance, the drain-work would amount to 20,160 cubic feet, or within 4 per cent. of the cost of the terracing. On the other hand, with a 1 in 3 or 18° slope in the ground, the quantity of earthwork to be paid for in terracing an acre would be $50 \times 210 \times \frac{2}{3} = 7,000$ cubic feet, while to cut drains in it the quantity of earthwork would be $6 \times 210 \times 2\frac{2}{3} = 3,360$ cubic feet, so that, with the assumed amount of silt clearance, the cost of the drains would, in only two years' time, exceed that of the terracing by nearly 44 per cent.!!

In regard to the assumed proportion of silt clearance, it may be noted that, assuming four clearances during the year, it gives an average depth of about three and-a-quarter inches for each; and that even if the quantity of each clearance does not reach the assumed proportion, the annual cost of all of them does so.

It will thus be seen that in all lands the cost of terracing is equalled, if not exceeded, by that of drain-cutting in about three years' time, while in the flatter or more gently sloping lands the difference is made up practically in a single year.

With regard to the depths of Darjeeling and South Indian soils, if there is any deficiency on plantations in the latter, it is not to be wondered at when the estates are weeded bare and soft, and are exposed to an annual depth of about fifteen feet of water acting under the best possible conditions for promoting denudation!

PEERMAAD,
26th December, 1897. } H. W. P.

[Criticism of the above letter is invited. The last para. does not touch the point of the respective depths of soil on jungle land in Darjeeling and South India.—ED.]

GENERAL ARTICLES.

SOIL RENOVATION.

ONE often hears it stated as a reason that old coffee does not bear as well as it used to formerly that the soil is exhausted. Now, however true this may be as regards the capacity of the coffee to extract nutriment from the soil, it is certainly incorrect to speak of the soil being exhausted itself. This is clearly proved by the fact of the annual growth of jungle and weeds on an acre of abandoned coffee must contain many times the nitrogen and minerals removed by a coffee crop. Tea is a far more exhausting crop than coffee, and grows freely in land that coffee can no longer exist in, so that rather than speak of the soil as being exhausted, it would be more correct to say that the supply of plant food in suitable combinations for coffee to attack is exhausted. Land left to itself uncropped and uncultivated accumulates fertility. Nature works incessantly and laboriously on behalf of soil fertility; and in undertaking the renovation of coffee soils, I do not believe there is the slightest necessity to employ any other agents than those that nature employs; all that we have to do is to so direct their energies that they may be subservient to the end desired, *i.e.*, the creation of a permanently fertile coffee soil. Nature herself has given us a very good standard of a fertile coffee soil in the form of new clearings from the forest. That there is ample plant food in new clearings is shown by the vigorous growth of the coffee plants, and a moment's consideration will show the great difference there is between new clearings and land that has been opened only a short time. To begin with, wash has not played havoc with the surface soil. There is a very large amount of organic matter in the form of roots left in the ground which run deep in every direction which tend to the complete aeration of the soil. The surface is covered with the worm-casts and the worm burrows honeycomb the land, all tending to the complete drainage and aeration of the land and destruction of wash. The disappearance of worms and the decay of the roots leads to a great consolidation of the soil, and the absence of the previously existing aeration must be fatal to the millions of microbes on whose efforts we are told soil fertility so largely depends; while the disappearance of the jungle gives that most deadly enemy of coffee, wash, a fine opportunity. Nature is at one with me in agreeing as to the damaging effects of wash for the first thing she does in taking in hand abandoned land, is to promptly put a stop to wash. That wash is to be feared I don't believe, given enough shade and thick coffee under it; at any rate I believe that wash from a coffee clearing can be practically reduced to the wash from the jungle, and that wash we know is not inconsistent with the accumulation of fertility; the aeration of the soil by the original jungle tree roots can be more or less replaced by the shade tree roots, and if the earthworms can only be induced to resume their labours, then we have practically got the soil of the coffee clearing in the same condition we have received it from nature, and by substituting leguminous shade for the ordinary jungle, we have possessed ourselves of an unlimited gratuitous supply of nitrogen, which is undoubtedly of the greatest use in combating leaf disease. The important part earthworms play in the renovation of soil and maintenance of fertility is not generally fully appreciated. Last year in September, *P.O.* gave an extract from Darwin, to which I must refer your readers, who are in want of full information of the subject, and will content myself with remarking that Darwin compares the action of earthworms to that of ploughing, and that, in a few years, they effect a complete inversion of the surface soil. Worms only thrive where there is plenty of organic matter. Their diet consists of half-decayed leaves, and organic matter which is ground up in their gizzards with the aid of small stones. A worm internally, I may remark, is geared on the same system as a fowl; only what is usually called a crop in a fowl is called by courtesy a stomach in worms, and both worms and fowls rejoice in the possession of gizzards. Prof. Scott says of worms: "Their action as soil-fertilizers consists in swallowing earth, leaves, and organic matter of all kinds, saturating it, converting it, and then ejecting it over the surface of the field. In this way they very soon effect a complete inversion of the soil down to a certain depth, especially on meadow land, which is left undisturbed to their operations. They even make additions to the soil by bringing up fresh matter from the sub-soil. Every time a worm is driven by dry weather or any other cause to descend deep, it brings to the surface, when it empties the contents of its body, a few particles of fresh earth. At the same time it fertilizes the sub-soil by opening up passages which encourage the roots of plants to penetrate deeper, these passages being lined with excreted matter which provides a store of nourishment for the roots. On meadow land, Darwin found these worm-casts amount annually to 18 tons per acre, and on good arable land to about ten tons. Dr. Gilbert has analysed worm-casts and found them to contain ·34 nitrogen, which is several times more than is found in ordinary soils. Ten tons of these worm-casts will thus yield 80 lb. nitrogen, or as much as is contained in two acres of a wheat crop." This is, of course, only in reference to worms and their work in England, and the point might fairly be raised is the output in quantity or quality in India equal to it. I have no hesitation in answering yes, and under favourable circumstances considerably in excess. To begin with the quantity or weight by acre. Every one is aware of the enormous size of the worm-casts in the jungle compared with the worm-casts at home. In "Forestry in Southern India" by Major-General Morgan, the amount of worm-casts is estimated at an annual deposit of two inches in depth per acre. This I can well believe when it is considered that many individual castings are over 4 inches high. Now two inches depth would be equal to about 80,000 lb. of soil per acre per annum. This conclusively

Soil exhaustion, a misnomer.

Nature and wash.

Worms at work.

Worms in England.

Worms in the East.

answers the query as to quantity available, and before I answer the point as to quality, it may not be out of place to point out that the quantity of worm-casts to be had depends largely on the kind of tree they are under. Among other trees, lime and shoe flower seem to promote the activity of worms to an unusual extent. It was the extraordinary amount of worm-casts under the *Erythrina Lithosperma* coffee, an amount actually in excess of the casts in virgin forest adjoining, and the also undoubted connection there seemed to be between the amount of casts and the vigour of the coffee: the more the castings, the more flourishing the coffee, that led to an inquiry into the constituents of worm-castings, and they gave an analysis results that may be fairly called startling, showing what an enormous complete source of fertility they are in themselves. At the same time an analysis was made of the finest portion of the soil from a few coffee trees under rock trees that bore a heavy maiden crop and bore heavily ever since. The soil was the finest portion only so as to get a fair comparison with the fine soil of the worm-casts. I give the two analyses:—

Ideal Coffee Soil.

Lime (Ca O) p. c.		...	1·792
Phosphoric acid ($P_2 O_5$) p.c.		...	4·473
Potash ($K_2 O$) p.c.		...	·910
Nitrogen (N) p.c.		...	1·260

Worm Castings under E. Lithosperma Trees.

Lime	(Ca O) p.c.	...	2·240
Phosphoric Acid	($P_2 O_5$) p.c.	...	5·112
Potash	($K_2 O$) p.c.	...	1·017
Nitrogen	(N) p.c.	...	·840

I may add that the worm-casts were taken fresh from different parts of the field to get a representative sample, care being taken to take them from under the oldest E. L. trees, so that the beneficial effect of the shade tree might be fully demonstrated and that the land they were taken from was unmanured, or to be strictly correct, was manured seven years ago with cocoanut poonac, so I am quite justified in describing it as unmanured. Both the analyses show soils of marvellous richness. The soil I have described as ideal coffee soil shows an enormous amount of phosphoric acid, and a phenomenal quantity of nitrogen, thus affording direct confirmation of the benefit of fish as a coffee manure. The analysis of the worm-casting is even the most remarkable, and is, I believe, the first that has been made with a view of showing the improvement in soil effected by leguminous shade. Legumes and earth-worms are, I believe, nature's two greatest agents in renovating soil. We see from the analysis that their allied forces form a perfectly irresistible combination on behalf of soil fertility.

We have the surface soil converted into humus containing one-half times as much nitrogen as cattle manure and infinitely more mineral constituents.

We have reckoning on a very safe basis of a supply of one-inch depth only, or reckoning the worms' outturn of work at only Darwin's estimate of their work in meadow land in England, 18 tons per acre, or, say, 40,000 lb. per acre, an annual supply of plant food as follows:—

Supplied by Legumes and Earth-worms.

Nature on the job.

2044 lb. Phosphoric acid.
896 „ Lime.
404 „ Potash.
336 „ Nitrogen.

against a crop removal of a few pounds of the same constituents. Surely after supplying the wants of the coffee trees, there must be an enormous balance to be carried to the credit of the enhancement of *soil renovation*. Whether nitrogen has attained its maximum is doubtful; I think it probable that with the increasing age of the shade trees that there will be further increase in the soil. It is, of course, impossible to say what proportion of the minerals shown in the worm-casts has been derived from the decaying matter of the shade tree loppings and sheddings, and how much has been elaborated by the worms from the soil, but of the value of everything in the form of worm-casts there cannot be any doubt, only the finest soil being selected by the worms and intimately mixed with the organic matter, the result being, as Darwin says, worm-casts are prepared as a gardener prepares soil for his choicest plants. Taking the analysis of worm-casts, it is very evident that cattle-dung could not be profitably used with them; cattle dung could only depreciate their v
So far I have only dealt with the value of the worm-castings the very important action of worms in draining and aerating th is well worth taking into consideration in considering their ut By themselves, provided their activity is stimulated to the ut they are capable of maintaining the soil in a high state of cul tion. With their combined properties of aerating, draining mulching the soil, worms are no doubt an auxiliary labour whose efforts on behalf of soil fertility are well worthy of stimula

An economical labour force.

and they have an advantage over coolie that they work their hardest without being quite satisfied with working for t grub, and at the same time it is possible to direct their energie given spots; for where organic decaying matter is, there will worms be gathered together, so to get the maximum amount of v out of our automatic cultivators, all we have to do is to pile the lopp and thinnings of the shade trees round the coffee trees, and by means we can concentrate their efforts in the desired direction. interesting point in leguminous manuring is that of the value of nitrogen in legumes. As different nitrogen compounds have s different values attached to them, an authoritative statement a the value of nitrogen in legumes will, I am sure, be welcomed extract the following from the Imperial Institute Journal wh appears in the *Indian Forester* for September. It is from address delivered by Prof. Maercker, of Halle, delivered to German Chemical Society in the current year summarising advances made in agricultural chemistry during the last twenty- years. The relative value of nitrogen compounds for plant foo given as under:—

Nitrogen of saltpetre	...	...	... 100
„ of ammonia	...	...	... 85—90
„ of albumen	...	...	... 60

and in reference to legumes: "The recognition of the powe leguminous plants to act as nitrogen collectors is manifestly of g practical importance, for it shows clearly that the best rotatio crops is one in which a leguminous crop is followed by one of nitro consumers, *i.e.*, plants which cannot assimilate nitrogen direc Leguminous plants, whether first used for fodder for animals simply left in the soil to decay, have their albumen changed in first instance to amides, which under the influence of ammo ferments are decomposed with formation of ammonium-carbon The salpetre bacillus then converts the ammonium-carbonate (probably also amides) into saltpetre, *i.e.*, the best form of plant food." Saltpetre is another name for nitrate of potash, so tha growing and manuring with legumes we are manuring with nitra The quotation I have just given clearly proves that we can grow own nitrates and will, I hope, set at rest once and for all any ques as to the value of leguminous manuring, and having established manuring with legumes is manuring with nitrates, I don't know there is anything more to prove to convince anybody of the v and efficacy of leguminous manuring. Coffee, if there is any relia to be placed on analyses, is surely a crop that ought to be speci benefited by nitrate of potash. Potash is the only ash constituent is removed, save in insignificant proportions, and nitrogen is largely required, especially to combat the drain of leaf disease, so leguminous manuring seems especially suitable for coffee, and am legumes it would be difficult to find one in which nitrogen and po enter so largely into its composition as they do in the case of *E. l sperma*. The outlook for coffee is none too cheery at present, with falling markets, enormous Brazil crops, and a "token" rency, with no possibility of reducing the cost of cultivation, so

Legumes equal nitrates.

Generosity of Nature.

announcement that Nature has provided with an unlimited supply of the most co nitrate—Nitrate of Potash—may fairly welcomed as the silver lining to the cloud. The close connec between Science and Practice is well illustrated by Science—C Cultivation without Manure. The enormous power suitable l minous shade has of enriching the land in nitrogen is cle demonstrated by the analysis of worm-casts, and the valu legumes is further emphasised by their conversion into nitrat potash, and most assuredly the 3 lb. per annum or so of lime phosphoric acid required for a 7-cwt. an acre crop of parchment

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e supplied over and over again as long as the shade trees grow, or he earthworms are at work. I had intended to have gone into he question of the best way of making the most use of the shade, n order to derive the greatest benefit from shade and the greatest ield from the coffee: only the fear that I have already trespassed oo much alike the space in *P. O.*, and the patience of your readers, nduces me to reserve discussing that most interesting question for future opportunity.

B. NELSON.

ANISE.

AMONG the numerous by-products of the Assam jungles are those ossessing essential oils, says a writer in the *Indian Planters' Gazette*, ut with tea pervading most minds these plants have hitherto eceived little attention. Anise or, as it is better known, anisette, he *Pimpinella an sum* of botanists, is found in all the forests, but most abundant on the low *teellahs* under the hills. Being chiefly, ome upon under dense shade, the Assam plant is dwarfed; but when emoved to the open, and liberally treated in the way of cultivation nd manure, rapidly responds. Though a jungle production, it is a elicate plant to move, as the tendrils of the root are exceedingly elicate, so that when transplanting as much earth as will guard he rootlets from contact with the atmosphere should be lifted. Open pruning-out to be adopted, and if labour is available, exposing he surface roots *when once the plant is established*, should be resorted o, for, like the rest of the order to which anise belongs, the *Calyci-lorœ* is a perfect glutton, as far as manure is concerned. Although he indigenous anise would presumedly turn out profitable enough o propagate as it is, seed of the Chinese variety from Macao would go a great way to improve it, and we would recommend hybridisation, ither by grafting, budding or impregnation with pollen from the mported plant. The different varieties of the *Calyciflorœ* are too umerous to mention in detail, but for the extraction of essential oils some being used for medicinal and culinary purposes, or the basis f liquors), these consist of anise, carraway (*carumcarin*), dill *onethum graveolens*), coriander (*coriandum sativum*), cummin (*cum-ninuno cyminimo*) and others that will no doubt suggest themselves o our readers; *hydrocotiyle asiatica*, which is reputed as an arrester f, or palliative for, leprosy also belongs to this order, as also *conium naccelatum*, the well-known common hemlock and similar allied plants many of which have fallen into disuse; the once belauded scent opoponax, distilled from the resin of *opastinaca* and *chironum*, are of he same family.

UTILISATION OF BONE-DUST MANURE.

THE following are the contents of No. 15 of the *Agricul-ural Ledger*:—

As regards (1) Utilisation of bone manure, it was mentioned in the eports of 1893-94 and 1894-95 that no further experiments had been nade in the province with bone-dust manure. The mill for crushing ones, started some years ago by Mr. Drummond, Deputy Com-nissioner, Karnal, in the Kunjpura estate, has been given up on the round of expense and absence of demand for the bone manure, and he mill, started at Lahore by the late Mr. Robson, for crushing bones or export was closed some years ago on his death. Even when the nill was working, there was no demand for the bone-dust locally for nanure. The price (about Rs.1-2-0 per maund at Lahore) was onsidered prohibitive by local agriculturists not accustomed to ntensive farming, though farmers in England are willing to pay £5 o £6 per ton, say Rs.3-4 per maund for the bone-dust as manure.

I am afraid that, while bone-dust manure is so costly according to ative ideas, and so long as the prejudice against its employment ontinues, especially among Hindu agriculturists, little can be done o check the exploitation of this valuable fertilising agency. It has, owever, to be borne in mind that Indian soils are deficient rather n nitrogenous matters than in the phosphates which bone-dust is o rich in, and bone-dust manure, which is so highly appreciated in Europe and America, has not been proved by experiment to produce qually good results in this country.

The exports of bones from Karachi, which come mainly from the Panjab, is meanwhile increasing with extraordinary rapidity, as the ollowing figures prove:—

	Exports in cwts.
1892	186,500
1893	227,133
1894	338,691
1895	422,582
1896	493,844
1897 (up to 26th May)	271,286 (in five months).

No doubt it has been stimulated within the last two years by the great losses of cattle in this province from drought and starvation. The price at Karachi remains from at Rs.1-1[illegible] to Rs.1-12 per maund (84 lb.) of dry uncrushed bones, and this year the value of the bone exported up to date is considerably greater than that of all food-grains exported.

[The above note will be read with interest, as it draws attention to the fact that such a useful fertiliser as bone-dust is readily obtainable from an abundance of raw material which can be easily disintegrated in this country. That there is a desire on the part of planters to possess themselves of this manure at a cheap rate was shown by the United Planters' Association of Southern India recently petitioning Government with a view to impose an export duty on bones. The bone meal manufactured in India is remarkably pure, and compares very favourably with that sold in England. The first of the two analyses quoted below is that of a genuine sample of bone-dust made by Mr. F. J. Lloyd, F.C.S., of London; the second is an analysis made by Mr. D. Hooper of bones crushed at Coimbatore, Madras Presidency:—

	1	2
Water	9·90	7·30
* Organic matter	33·70	28·70
Lime	26·62	31·69
Phosphoric acid	22·50	25·53
Magnesia, salts, etc.	6·18	6·42
Silica	1·10	·36
	100	100
* Containing nitrogen	3·66	3·32
Equal to ammonia	4·44	4·03

PINEAPPLE FIBRE.

THE United States Department of Agriculture has recently communicated a special report on the subject of pineapple fibre. As the pineapple is now largely cultivated in Assam, and has become naturalised in India, the information contained in the report should have considerable interest to pineapple-growers in this country.

In preparing the fibre, the green leaves are steeped in water for some days, as they become unmanageable if allowed to dry. The native method of hand preparation is to lay the leaf upon a board and remove the epidermis and succulent matter with any suitable scraper. A two-handed bamboo plane is used in China, while in the Philippine Islands the blunt end of a potsherd is employed. When the epidermis has been removed, the fibres are exposed, running in a longitudinal direction. Another worker now takes the planed leaves, and loosens with his thumb nail the fibres near the middle of the leaf and, gathering them in his hand, detaches them from the outer skin. The fibre is very fine and soft, the filaments being quite flexible and resistant; they yield readily to treatment in an alkaline bath, and are easily subdivided. After separating from the skin, the fibre is steeped in water, washed, and laid out to bleach on wide frames of split bamboo. The processes of washing and exposure to the sun are continued until the fibre is considered to be properly bleached. The isolated fibres are now very fine, and of a tolerably regular diameter, although varying considerably in size, the interior canal being very noticeable in the larger, but almost absent in the smaller, ones. The points are rarely sharp, but generally rounded.

It is claimed for pineapple fibre that constant immersion in water does not in the least injure it, and the natives tan it, with a view of increasing this property, though this is probably done at the expense of some of its strength. The fibres are very flexible, curling and twisting readily. Although naturally fine, the bleaching process, which destroys the adhesion between the bundles of fibres, renders it so much finer that it can be spun like flax. Both the wild and cultivated pineapple yield fibres which, when spun, surpass in strength, firmness and lustre those obtained from flax.

For the manufacture of sewing thread, twist, curtains, etc., its particular qualities render it specially applicable.

In tests of strength, pineapple fibre exhibited superior tenacity. The fibre from Singapore bore a strain of 350 lb., as against 250 lb. borne by New Zealand flax. This latter is considered superior to the

highest grades of English hemp. In the *Journal of the Agricultural Society of India* (Vol. III., p. 182), there is a record of a rope of pineapple fibre, $3\frac{1}{4}$ inches in circumference, bearing a strain of 5,700 lb. before breaking.

In the East Indies, where the pineapple was introduced as early as 1600, the fibre is exclusively employed in the manufacture of the delicate fibre known as "pina" as well as for cordage. "Pina" is considered more delicate in texture than any other product manufactured from vegetable fibre. It is woven from untwisted fibres, after they have been reduced to extreme fineness, and have had the ends glued together to form a continuous thread. The plant is specially grown in the Philippines, and it is customary to remove the fruit before maturity, so that the leaves may be more fully developed. Were the industry to be established commercially, it is certain that the tedious process of hand preparation would be superseded by machinery. Several machines have been invented, and Spon describes one by Sanford and Mallory, which cleans, it is stated, from 6,000 to 8,000 leaves per day.

The machine used by Mr. Dodge, the author of the United States' Report, was one by Van Buren, which, while turning out a superb product, would be quite inadequate for the work from a commercial standpoint, as only two or three leaves can be fed in at a time. The Florida fibre, when simply plunged into cold water for a few moments after coming from the machine, and then dried in the sun, came out almost white, and of a fineness and softness unequalled by any other leaf fibre with which the department had dealt.

Quotations as to value are not at present available, as the fibre is not yet a commercial product. There seems no doubt that if the fibre could be produced in quantity, at economical cost, manufacturers would readily find use for it. The question as to a suitable machine, enters largely into the problem. Estimating ten leaves to a pound, there would be over 22,000 leaves to the ton, from which about 50 to 60 lb. of fibre is obtainable. The Sanford and Mallory machine; capable of clearing 5,000 to 8,000 leaves a day, would only produce 12 to 18 lb. of fire; this would make it somewhat high in price. The United States Department of Agriculture intends to carry its experiment with pineapple fibre further, so as to give manufacturers opportunity of examining it. It may beadded that the value of Indian pineapple fibre is being ascertained, and its characteristics investigated in the Scientific Department of the Imperial Institute.

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PLANTING OPINION.

A WEEKLY JOURNAL

(WITH MARKET SUPPLEMENT)

WRITTEN BY PLANTERS FOR PLANTERS.

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DOMESTIC OCCURRENCE.—The fee for inserting a domestic occurrence will be *One Rupee* for each insertion, payable in advance.

N.B.—Remittances should be sent to the Manager, "Planting Opinion," Esplanade Row, Madras.

IMPORTANT NOTICE.

The Business Offices of this paper having now been removed to Madras, all remittances should be made payable to the Manager of *Planting Opinion*, 3, Esplanade Row, Madras, who will also attend to all advertisements, &c.

Letters to the Editor should be addressed to Coonoor, as usual.

SEASON REPORTS.

NOTICE.

TO OUR SEASON REPORTERS.

Please post your next reports to reach Madras on Friday, the 21st January, 1898.

South Travancor SHENCOTTAH.—What coffee there is continues to look well, but we are not having our usual winds. No wind generally means working up for rain, and this is anything but wanted for another month.

Coorg. POLLI BETTA, 11*th January.*—*Weather.*—The weather has continued severely fine for the past fortnight. East wind has been rather strong. *Crops.*—We are rapidly nearing the beginning of the end of crop. Picking and stripping going on. Pruning commenced. *Plant Diseases.*—Leaf-disease has disappeared, and trees are coming nicely out of the pruning. Prospects for the coming season are very good. *Public Health.*—A lot of fever and bowel-complaints prevalent. *Interesting Item.*—Chief Commissioner to visit place on 17th instant.

Lower Pulneys. *5th January.*—*Weather.*—Cloudy on 29th, 30th and 31st December 1897, with light falls of rain on west and south of these hills. Since 1st January it has been clear, days are now hot, and nights very cold, with heavy dews. The N.-E. monsoon of 1897 has been a failure. *Crops.*—Coffee coming in slowly. Grain getting expensive. *Labour.*—Sufficient. *Health.*—Generally good. *General.*—Estates are working remarkably well. Leaf disease in a mild form on a few places. Green bug still with us, especially in the south, this scale pest begins to show up badly after April.

Nilgiris. COONOOR. — 12*th January.* — Weather bright, cold and unclouded till yesterday, when thick mist and a strong wind rose. A score this for the "moonists"! Crops not more than half in yet on most places, quality of bean good. Lots of good wood, as per usual, for next year. The failure of the N.-E. monsoon leads us to expect anything but seasonable weather, though, this year. Tea flushing unusually well for this time of the year, as the frosts have been very slight so far. Pruning in full swing.

No interesting news to relate, not even items. Excepting that the "great" Nilgiri Plantations Company are not likely to be exactly in clover this year, as far as crops go. Grand effect the Company has had in raising prices of local estates: every one wants "company prices" now.

Grain rates still high, health of coolies fair. Labour abundant.

AGRICULTURAL CHEMISTRY.

A QUARTER OF A CENTURY'S PROGRESS.

THE last twenty-five years of agricultural research have witnessed momentous changes, and none more complete perhaps than the now general recognition of chemistry alone being unable to grapple with the practical side of agriculture. In an important address delivered towards the close of last year by the celebrated Professor Maercker, of Halle, to the German Chemical Society, a lucid review is given of the progress of Agricultural Chemistry. Analytical Chemistry, *pur et simple*, no longer holds the commanding position it did. On the contrary, the Agricultural Chemist is now often more concerned with the biological sciences than with chemistry. The three most important divisions of latter-day agricultural research are Plant Food, Soils and Manures, and lastly, Artificial Selection.

PLANT FOOD.

Until the quite recent introduction of water and sand cultures, very little was known of the forms and quantities of the nourishment required by plants. By means of these cultures, from which all extraneous influences are rigidly excluded, we can trace the action of many substances in the plant itself. Thus we know that nitrogenous substances in the plants cannot be formed without the aid of phosphoric acid, for the albumens, which are of such transcedental importance in the transformation of substances in plants, result from an intermediate phosphoric acid compound. Again, iron is an essential constituent of chlorophyll, as sulphur is of albumen. The true action of calcium was long doubted. It is now known to be of a medicinal character, serving to neutralize the poisonous oxalic acid, which is always an intermediate product of the carbo-hydrates. Potash again has the closest of relationship with the formation of sugar in beets. Magnesium appears to be of importance in the formation of nitrogenous compounds in seeds, while nitrogen is of course indispensable, being an essential constituent of albumen.

Wolff has conducted some curious experiments, proving what he calls the "*mineral hunger*" of the plant. In other words, though a certain minimum amount of minerals may suffice to induce a healthy growth, all plants grown under normal conditions contain a great excess of this minimum. Oat-plants for instance require for their healthy growth the following minimum amounts of important minerals:—

Phosphoric acid	·50	parts.
Potash	·80	„
Lime	·25	„
Magnesia	·20	„
Sulphuric acid	·20	„
	1·95	„

But no oat-plant in nature contains under 3 per cent. of minerals. The difference, 1·05 represents the mineral hunger of the plant, such excess of mineral not performing any special function. As it might well be applied in the form of an indifferent substance like silica, it shows that it is not economical to manure crops with pure substances.

SOILS AND MANURES.

Knowing what the plant requires as food, the problem to be now solved is how to apply it in the soil itself. Unless accompanied by a "mechanical analysis," meanin chiefly a determination of the amount of finely divide constituents in the soil, it has been found the chemic analysis of a soil is of little use as a guide. It is only t finely divided earth which presents a sufficiently lar surface for the exercise of the solvent action of water a its dissolved carbonic acid. Where only traces of important plant-food are found, there is of course question as to the advisability of supplying that constituen

On the other hand nitrogen for instance may be reveale in great quantities by analysis, yet plants growing on suc soil may require liberal doses of that element to enab them to thrive. For in the form of humus or mould, very large proportion of the nitrogen is quite unavailab as plant-food.

Phosphoric acid affords another illustration. Whe applied in a soluble form it is of course available to t plant, but in time may change into insoluble tricalciu phosphate, or even to iron or aluminum phosphates, whic are still less soluble.

Calcium or lime however may be easily determined b analysis, since it is chiefly valuable in the soil as carbona or humate, and these are easily estimated in the soil.

Direct analysis being then a failure, attention has bee turned, and with great success, to the indirect or cultiv tion method, in other words letting the plants themselv determine the quality of the soil. Most of our readers a probably well-acquainted with this method, common known as Ville's test-plots. A sufficiency of each an every constituent of plant-food is given, save one. Th plants are then analysed and compared with plants grow on soil containing the complete plant-food, and one impor ant result of this method has shown that different plan take up very different quantities of the same mineral sub stances. The system of rotation of crops is based on th fact.

By means of the cultivation method a very useful tab has been drawn up showing the relative value of th different nitrogen compounds as plant food:—

Nitrogen in saltpetre (nitrate of potash) ...	100
„ „ ammonia	85 to 90
„ „ albumen	60

These test plots may also be used for testing the valu of manures of all kinds, as in the case of "Thomas" sla which is now used to an enormous extent as a phosphat manure. Similar experiments with regard to potass manures have given a great impetus to the potash industr The "cultivation method" of analysis has given us almo control of the fertility of a soil, as far as this depends o manuring. It has taught us amongst other things tha sandy soil, so long considered almost barren, can be mad extremely fertile by the scientific addition of manures.

A last point, and one to be well borne in mind by th unscientific rule-of-thumb planter, is that the supply excessive nourishment is a disadvantage and only tends t produce sick plants.

ARTIFICIAL SELECTION.

This last branch of agricultural research is one of enormou importance, though still in its nearest infancy. By its ai the fertility of plants may be increased far beyond th limit which Nature appears to have fixed. German agricu ture would long since have broken down under the stres

of foreign competition had it not been for the perfect technology of its agriculturists. The very success achieved spurs them on to greater efforts. We Planters, who, as a class, are so woefully behind the times, have never tried to perfect our technology in a scientific way. And it seems as if the day of our first united efforts were still far distant.

To return to artificial selection. The case of the fight of the sugar-beet against cane sugar affords a splendid instance of the triumph of scientific agriculture over rule-of-thumb methods, though aided by cheap tropical labour. Originally the sugar-beet contained only a small proportion of sugar, and could only be used for sugar manufacture when the price of cane sugar was very high. We will quote here the words of the *Imperial Institute Journal*: "With the fall in price came the urgent need for increasing the percentage of sugar in the beet-root. This was effected by utilising the fact that sugar richness is hereditary, so that by selecting artificially the roots richest in sugar, getting seed from these, planting the seed, again selecting the richest roots and so on, a race of plants is at length obtained in which a high percentage of sugar is normal." The beet industry now supports great laboratories for carefully determining the percentage of sugar. By these and other efforts sugar is cheaper now in Germany than flour, costing less than a penny a pound.

What is this but the methods we have so persistently advocated in improving our coffee-strains? Yet, because Planters as a class are so utterly unfamiliar with the methods of scientific agriculture, they look upon such questions as impracticable. They are impatient of delay, results that cannot be obtained in a year or two, are not, so they opine, worth obtaining at all.

Success similar to that obtained in the sugar-beet has also been attained in the different crops of grains, malt-barley being a special case in point.

Highly-cultivated and artificially selected plants easily lose their acquired characters when exposed to unfavourable conditions. This has led to a series of exact investigations, the most interesting being the tracing of the history of nitrogen as it passes from the atmosphere to the soil, then into the substance of plants, and finally into the atmosphere.

As a rule plants can only assimilate nitrogen in the form of compounds. But the supply of these compounds in the atmosphere is comparatively small. There must be some other source of supply. This is the order of leguminosæ or nitrogen-collectors, which are able to assimilate elementary nitrogen, and so enrich a soil in which they have been grown, with nitrogen compounds. This power of collecting free nitrogen has been always associated with the presence of micro-organisms in the roots.

Mr. Nelson's áble articles on this subject have rendered most of our readers familiar with this side of agricultural research. An interesting point, however, which we do not remember seeing before, is the conversion of the nitrogen of legumes to saltpetre when decayed in the soil. We have given this point in a paragraph in our "Notes," to attract general attention.

Unfortunately, the whole of the nitrates thus produced cannot be taken up by plants on account of the destructive action of the nitrate-destroying bacilli (full mention of which has already been made in this Journal which decompose the nitrates and set free the nitrogen, which passes again into the air.

These nitrate-destroyers are usually present in stable manure and cause a loss of many millions of pounds annually to German agriculture. Efforts, which it is believed will result in early success, are now being made to avoid this loss.

* * *

With even this brief review before him of the progress of agricultural science during the past quarter of a century, can the reader seriously affirm that scientific agriculture is useless, that it is not worth spending a few rupees on? We in South India have only two staples, coffee and tea. Both are fighting their way exposed to the fierce competition from other countries. If we lag behindhand in the struggle, if we disdain to use the weapons lying at our command, we may be sure that our rivals will not be so apathetic. It is worse than useless to make light of the gravity of the struggle. Individuals, by the application of that foresight so deplorably lacking in the community at large, may weather the storm successfully. But individuals cannot hope to save an industry by their private efforts. It behoves us all to stand shoulder to shoulder, to join our resources and fight our way as a whole. We can easily help ourselves. If we fail to do so, the fault is ours and ours alone. Patent systems of curing leaf-disease and other ills our plants are heir to will not save us. In scientific agriculture and in that alone lies our salvation.

NOTES.

Flooding nurseries. The Editor of the Calcutta *Planter* gives a novel suggestion as to the best treatment of nurseries affected with disease: flood the nurseries and drown the pests!

Salt for agriculture. The possible uses of salt for agriculture being many and various, we are glad to note that the Ceylon Government has appointed a Committee to inquire into the best ways of denaturalising salt, presumably after the methods already in vogue in Prussia.

The Ceylon tea-crop. The revised estimate of the Ceylon Planters' Association for 1897 was 119 million pounds, the actual sailings show a shortage of very nearly 3 millions. The total shipments for the last three years were divided roughly as possible.

	1897. Million lbs.	1896. Million lbs.	1895. Million lbs.
United Kingdom ...	98½	nearly 94	85¾
Colonies ...	13½	„ 11¾	9⅓
Other Places ...	4	2½	2¾

A prosperous Company. The Ceylon Land and Produce Co., Limited, has a splendid record for the past eight years. Neither high exchange nor low prices seem to affect it. Steadily paying 6 per cent. to the preference shareholders, the ordinary shareholders have taken during the last eight years as follows, says a *Ceylon Times* writer:—

1890	...	10 per cent.	1894	...	15 per cent.
1891	...	10 „	1895	...	*15 „
1892	...	15 „	1896	...	*15 „
1893	...	*15 „	1897	...	*15 „

* And 5 per cent. bonus.

To kill trees. It is a matter of great difficulty to kill out certain trees, like the fig and eucalyptus tribe, that throw up suckers from their roots. As a general rule, a careful ringing, cutting well into the white wood, will effect the purpose, but this, we learn, is by no means invariably successful, as suckers shoot out below the cut. An authority on horticulture has informed us that a very good method of killing trees of obstinate vitality, is to bore holes well into the stem with augers, and fill up with caustic soda, giving each tree two or three ounces, according to size. The soda is very cheap and may be readily obtained anywhere.

Decaying Legumes form Nitrate of Potash. The following extract from an interesting article in the *Imperial Institute Journal*, on which we dwell at length elsewhere, will be of interest to many of our readers: "Leguminous plants, whether first used for fodder for animals or simply left to decay in the soil, have their albumen changed in the first instance to amides, which under the influence of ammonia ferments are decomposed with formation of ammonium carbonate. The saltpetre bacillus then converts the ammonium carbonate (and probably also amides) into saltpetre, *i.e.*, into the best form of nitrogen plant-food."

Average of Colombo Tea Prices. As given in the *Times of Ceylon*, the yearly average price for tea sold in Colombo since 1891 is as follows. In giving the quantities sold, fractions of a lac are omitted :—

1891	9,500,000 = 41 cents.	1895	19,600,000 = 47 cents.
1892	11,100,000 = 41 „	1896	25,400,000 = 41 „
1893	14,200,000 = 43 „	1897	26,500,000 = 37 „
1894	15,700,000 = 43 „		

A rapid drop since 1895, it will be observed, has taken place. At the present exchange 37 cents equals $5\frac{3}{4}d.$ and as the best tea usually goes home, and bearing in mind too the saving in freight, &c., the price compares well with London rates.

Coffee in Madagascar. The history of coffee in this island is a curious one. The industry was started in a large scale in 1871 by Mr. Alfred Guernot, in the Mahonoro district. A year or two later planting was undertaken throughout the island on an enormous scale, but such was the ignorance of the cultivators that after a few years all the plantations had disappeared, dying through absolute neglect and starvation. A single Planter, Mr. Jean Comte, now in Tamatave, was in the habit of yearly manuring his trees, which were cropping well till the late war broke out. In 1880 the local price of parchment was only 3 dollars per 100 lbs., now it is difficult to purchase it at 11 or 12 dollars. Nearly all the foreign community, by the way, drink tea in preference to coffee.

Experimental products. In concluding an interesting review of the year, the *Ceylon Times*, in touching on products other than tea, remarks :—

"The other older products do not call for much notice, except that the boom in the Cocoanut industry still continues, although prices have fallen considerably of late. Of the Cacao disease much cannot be said till the results of Mr. Carruthers' inquiry are known. The enterprise of this gentleman, and the Governor's desire to help Cacao planters in spite of official snubbing from Downing Stre and the apathy of the Kew Gardens authorities, are most commen able. We sincerely trust Mr. Carruthers will find a remedy for t Cacao pest. New products are being taken up with the decline tea profits. Rubber has already established itself and is plant over a large area in patches, and will undoubtedly prove remune tive to some. But the localities where it will grow to pay best a not known yet; and there is no doubt that some planters will suff loss by their experiments. The agitation over, Ramie fibre h died away to a great extent with the departure of Mr. Macdona from our shores. Small experiments, however, are still being ma and these will, we trust, lead to a further extension of the culti tion, which seems fairly promising over a considerable area Ceylon."

Early handling of coffee. Looking at the effects of ear and late handling, says an exchan correspondent, I have come to t conclusion that in order that the trees should derive t greatest benefit from the operation, the work should finished in August at the latest. I have noticed that whe the trees have been handled early the branches left on t trees for crop next season are fine and thick and hold o promise of bearing good big rings of berries at each of t nodes, but where the handling has been done late, the woo is more or less attenuated. This can be easily understoo In the latter case light has been excluded from the tre for a long time, and the sap has been diffused over a larg number of branches instead of being diverted into t requisite quantity for bearing crop. Another advantage early handling is that the wood and leaf left rapidly matu and are better able to withstand leaf disease. In ear handled trees, too, there is an almost constant growth young shoots which, I think, exercises a countervailin effect on the bad effects of leaf disease.

Venesta Tea Packages. Our local firms might do well import a few of these chests, judg ing from the following extract fro a Ceylon exchange :—

"We learn that the Ceylon Tea Plantations Company, after thorough trial of these boxes, are so satisfied with the results tha they have given orders that the whole of their 1898 crop is to b packed in this new form of chest. The trial lot on which the te was made contained nearly 100,000 lbs. of tea. The usual loss weight of tea on this would have been about 500 lbs. (exclusive draft) if ordinary country or momi packages had been used, but the Venestas were practically exact in weights there was a *gain* three pounds of tea on this large shipment. The teas were fro four different factories, so that the test was the more complet The packages arrived in splendid order, and were entirely satisfa tory. The Company, we are informed, expect to save some £1,00 per annum on their package account by the use of these chests. Th tea industry has waited many years for a perfect tea chest, and now seems that at last this has been found. We are informed tha the veneers of which these chests are made is manufactured i Russia, and only one firm holds the secret for the particular kind glue for fixing the veneers. The Chest Company tried Canadia veneers, and other sources of supply, but none were of any use fo box purposes. The wood used is birch, of which it is said the Russia Company has an unfailing source of supply."

The interests of Managers. Our worthy contemporary, th *Ceylon Observer*, has taken up th cause of the Managers and Superin tendents of estates, as far as relates to their being give a real share in the prosperity of the concerns whos interests they serve. The Editor, in noticing the ver natural objection Proprietors now feel in giving up an share of their contracting profits, pertinently remarks tha

it is probably only by such methods that the fall in the gains will be stopped. The tea-industry is by no means so flourishing as it used to be, the margin of profit is getting sensibly smaller. Every item of cost saved in the manufacture and preparation of the tea, every improvement in the field or factory, means additional profit to the proprietor. What inducement can be offered to the Manager and Superintendent, save that of sharing in the profits? For it is very certain that without some such additional inducement, the employés will not take the additional trouble inevitably required to render feasible the improvements noticed. Very sound advice, and most applicable, as we have already pointed out, to our own coffee and tea-industries.

Tea manuring and flavour.

The question of the use of manures affecting the flavour of tea has now reached a new phase. A Mr. Bour, of the Ceylon Manure Works, regards as a very great danger the increasing use of strong-smelling manures, such as raw bones, poonac and fish, on the novel ground of their directly affecting the flavour of tea by their objectionable odour. In proof of his contention, he remarks :—

"As regards the question of strong-smelling substances tainting the flavour of tea I would point out that I had been cautioned against their use by more than one authority on this matter, and as a practical demonstration one of the leading agronomists of France submitted to me samples of wine from a vineyard which had been manured with a strong-smelling fertiliser, and the flavour of which had been distinctly affected, whilst the wine from the unmanured plot of the same vineyard was all right. Further Mr. Hughes, on whose judgment must be placed the greatest value, expressing the opinion that no blood, raw bones and fish should be used as strong-smelling substances taint the flavour often, and that unless first treated with acid, these materials were dangerous, there being a risk that they might introduce some fungus disease which should certainly be a warning to planters considering the havoc done by the coffee leaf-disease. Mr. Hughes was very particular as to the ingredients to be used and that their composition should be such as to suit the nature of the soil, crop and climatic conditions of low-country and up-country estates. There will however be this further advantage that his mixture can be made up in any proportion which planters with practical experience on the subject, may deem best suited to the requirements of their soil."

Agricultural Chemistry.

Science takes a very, very long time to filter into the minds of agriculturists of all countries. It should surprise no one therefore to find that with perhaps two exceptions, no planting district of South India has thought fit to support the proposal brought forward last year at the U. P. A. meeting, calling for subscriptions to secure the services of an agricultural expert for our industry. In the proceedings of two District Associations reprinted in this issue, it will be noted that while Coorg thinks that private enterprise should pave the experimental way, the Nellampatty is of opinion that the whole scheme is useless. Ye gods and little fishes! Surely it is not difficult to see that, as regards the first objection, private enterprise must be infinitely more costly than combined effort, while not nearly so satisfactory. The Nellampatty decision is more difficult to argue with in a short paragraph. But as that cast of opinion seems common to most Planting Associations of South India, we must buckle to again, and do our utmost to do what we can to set forth the true value of scientific agriculture. Practical planting by rule of thumb has had a long trial in good sooth. With yearly falling crops and more virulent attacks of plant-diseases, can the good old rule of thumb be said to be a complete success? Or is it on the other hand, that the very failure of the old system has left no funds wherewith to try the new? Science, thy name is not "planting."

Coca growing.

It is a pity that more attention is not given to these valuable plants. At the ordinary coffee-elevation they grow very freely, and as the shade they give is exceedingly light and their development slow, they could be interplanted among the coffee without danger. The plant is really only a shrub of very sparse growth Fine specimens may be seen growing in the Burliar experimental garden :—

"Good coca leaves yield ·5 per cent. or more of cocaine, but the average is less, and if fermented often nil. The London market price of cocaine a few months back, was 9*s*. 3*d*. to 9*s*. 6*d*. per oz. Great care must be taken in the gathering, drying and preservation of coca, and its activity and value depend in a great measure on its mode of preparation. The leaves should be gathered as soon as they have arrived at maturity, at which period they are bright green on the upper surface, and yellowish green on their under surface, and have an agreeable and somewhat aromatic odour. The leaves are gathered separately and carefully by hand with the two-fold object of preventing them from being crushed or bruised in the process, and also so as not to injure the young leaf buds which are left behind for the purpose of obtaining a second crop of leaves. They are then spread out and dried slowly in the sun. The operation must be performed with great care, for if the leaves be dried too rapidly, they lose their odour and green colour; and if stored before they are thoroughly dried their colour is also changed, and they acquire a disagreeable odour and taste. Commercial coca either consists of the leaves more or less pressed together in compact masses or of the leaves in a loose state. In either case the leaves are not curved or rolled in any degree, but perfectly flat. The properties in the leaves are injured by transportation and often by keeping; they should therefore be packed in tin-lined cases."

LETTERS TO THE EDITOR.

RAMIE.

SIR,—The following facts with reference to "Ramie" may interest your readers. The letter is written by a Planter in Selangor, Straits :—

"Several clumps of ramie having an average of 20 stems each were cut down to within 3 inches of the ground on the 16th November last and the stools to-day (21 days from cutting) have an average of 40 stems, 3 feet to 3½ feet long and nearly ½ an inch in diameter; there are besides about 20 young shoots on each stool about 1 foot high.

"About 150 unrooted cuttings 6 inches high were planted on the 5th October last and in 28 days averaged 4 feet in height and are now all 5 feet and almost ready for cutting."

BANGALORE, *6th January*, 1898. ALOEKOP.

COFFEE SHADE TREE.

Sun-dried Erythrina Lithosperma loppings, &c., contain per ton :—

61·50	lbs.	Nitrogen.
57·38	„	Potash.
14·92	„	Lime.
13·68	„	Phosphoric Acid.

Seed cured under Messrs. Sutton and Sons' advice.

Orders should be booked early for the coming crop of seed from the parent trees of above analysis at Rs.6 per pound containing about 2,000 seeds. *Germination guaranteed.*

Only thornless variety extant, and is not procurable anywhere save from the

MANAGER, ARIENKOW ESTATE,
Shencottah.

DRAINS vs. DRAIN-CUTTING.

SIR,—It is easy to see that your correspondent "H. W. P." is no planter, for his calculations as to the respective cost of terracing and drainage are extraordinary to a degree. He would have done well had he taken the trouble to get some Peermaad planter (for he dates his letter from that well-known planting district) to give him the current rates for the two kinds of works he touches on. To reckon the cost of clearing out drains as being the same as cutting into hard subsoil to make terraces, is ridiculous

However, I will spare "H. W. P." any hard words, for it is not often that an outsider takes the trouble to interest himself in our industry. We should appreciate the compliment accordingly. In earnest, though, I think, that if a cheap and rational plan of terracing could be adopted, it would be to the very great advantage of all concerned.

Anyway, the more attention that is drawn to the subject of the great loss we all undoubtedly suffer from wash the better. If terracing cannot be managed, efficient drainage and other methods might effect the same purpose

But to return to our muttons. The six drains he mentions would cost about 7 rupees to 10 rupees, according to the slope, allowing a very moderate kanak per cooly. Cleaning out the drains would involve an annual cost of 2 rupees per acre at the outside, as the amount of silt deposited would be half the depth only of the drain.

Now for the cost of the terracing, which is not quite so simple. From a very limited experience I find it runs out from 30 to 50 ft. per acre. Taking the former figure as correct, the total initial cost of terracing is three times as great as that of draining. It would take *ten years* for the yearly outlay in cleaning out the drains to bring the two amounts equal.

So far as regards the money cost. Now for the practical side of the question. In our hot South Indian coffee-districts, the effects of long droughts are disastrous on the narrow style of terraces advocated by your correspondent. The coffee plant is a very shallow-rooted shrub. The greater the surface of soil exposed to the desiccating influences of sun and air, the more intense the danger of the plant dying out altogether in times of drought. This is no theory. It has been proved often, and disastrously enough in most districts.

The alternative is to have the terraces broader, say broad enough to receive two plants, in fact say ten feet. Now in the ordinary shallow South Indian coffee-district, this means that the inner half of the terrace will be merely subsoil, and will consequently suffer greatly.

If the field to be terraced is exceptionally rocky, it would be an excellent plan to merely build low retaining walls every row if possible. If not, the only alternative to my mind is to let terracing slide altogether and revert to shallow trenching between every row. Trenches, I mean, that would be continuous from one end of the field to the other, and would only be interrupted when cut across by the down drains. One foot in depth would be ample for the purpose, and as the first foot of soil is ever so much cheaper to dig than the second, the cost per acre runs out to very little. A cooly could dig 100 feet $\times$ 1 $\times$ 1 easily enough, I should say, as he can do $60 \times 1\frac{1}{2} \times 1$ without much urging. Roughly speaking, it would come out to about 17 feet per acre. Allow a single down drain per acre, at say 3 feet and the total comes to 20 feet.

Of absolute silt there would be almost nil, though the current works on estate would tend to fill them again every year. The cost of keeping them open must be considered in the light of the whole work of an estate, where cultivation is at all thoroughly carried out. For instance, if up and down trenching—mentioned by you in the last issue—be undertaken, no extra cost is involved at all; it becomes merely part of an alternative routine. Or otherwise, all prunings, weeds, loose stones, &c., should be placed below each trench to keep up the sides and deepen In this case it might be advisable to have more than down drain per acre; three or even four (shallow ones of cour would be good.

I am afraid I have rambled a good deal in this letter. the subject will bear a lot of discussion

The chief advantages I claim for my system is that, thou not so permanent as terracing, it is somewhat cheaper in initial cost; also that it will not tend to dry up the plants times of drought; finally that it can be applied witho difficulty to the oldest plantations now existing. 1 IN 2.

GENERAL ARTICLES.

UPPER BURMAH AS A PLANTING COUNTRY.

IN compliance with your suggestion, I send you a sho summary of my eight years in Burmah, regarding the gre advantages it holds out for the cultivation of coffee a tea.

When employed on the Burmah Ruby Mines I had oppo tunities of studying the rock, soil, and vegetation of th grand mountain tract.

The Forest Department divides the forests into t classes, the "Ever-green," ranging from 3,000 feet upwar and the lower zone, "Wintering" forest which sheds leaf as in Europe.

These forests are among the richest to be seen, timb and dense underwood clothing the mountains to the crests. "Tongmay," some 7,000 feet, is a mass of fore dominating all. To its northern side lies "Bernardmyo where troops are stationed. Southerly of this huge mounta range are "Mogôk" and "Kytpin" (pronounced Chopyn Where the ruby mining is carried on, the country connected by a metalled cart road to the river ghât Thebetkin, in all some 90 miles made for the sole use the Ruby Mines. The Irrawaddy Co.'s fine steamers touc here twice a week.

Coffee. This was found 15 feet high the forests, bearing a singular small berry. Like all wild species it is nearly all wood an leaf with but little fruit. It was found growing in war sheltered valleys and basins at 6,000 feet elevatio Hundreds of these trees I examined; no speck of le disease was there. Cultivation insects would improve th healthy variety. It was also found in scrub jungle 5,000 feet, with more berries on it.

Tea. An old Assam Planter showed m trees that I at first could not believ were tea, they were so large, as thick as a man's thigh, an of considerable height. He deemed them superior Manipori in Jât, and he ought to know, for he had been Assam twenty years. They were found in the Ever-gree forest between 3,000 and 6,000 feet.

Soil and rock formation. The basic rock is granitic wit up-shoots of trap, again cappe with decomposed gneissic roc over-lying also is the alabaster, a sulphate of lime. This the matrix of the ruby, &c. As coffee requires 20% lime marley land carrying a rich thick vegetation is simpl perfect for growing coffee. The timber is very large, i the higher ranges huge oak trees with the crabapple cherry, pear, laurel, Spanish chestnut, &c., with willow growing on the water channels of this amply watere

ountry. The luxuriant underwood reminded me of the Ouchterlony valley," as "*Nillah*" underwood stretches or acres. Tree fern also and a vast succulent growth which nly a Botanist could describe, thrive on the deep loam. The grass lands were deep in high grass: where grazing vas, it was fine and filled with a great variety of crocus, &c., on the stream sides was the fox glove, pink and white.

In the flats in winter there is frost and ice, which yearly prevent the oak saplings from growing. Rainfall—showers n April and May—good after ruin to ruby; rainfall from 90 to 80 inches. The road escarpments and mines show he great depth of soil on its gneissic crumbled rock. It vill be borne in mind that Upper Burmah is near the Tropic of Cancer, 23°. The winter gives the fair-skinned plump Shan and Burmese girls red cheeks, and makes the people hardy. This vast tract of forest and grass extends 200 miles north of Bhamo and south to the Pegu District ome 700 miles, its breadth extends to the Siam frontier, ll lying east of the Irrawaddy. The land is so fertile hat for the past 100 years no manure whatever has been pplied to paddy, which gives one crop yearly.

Land tenure. Having been consulted by Sir Alexander Mackenzie, the then Chief Commissioner, as to the best tenure of land which would nduce *bonâ fide* Planters and investors to take up land, he tenure is most favorable for coffee and tea Planters, axes only commencing after the fourth year.

Labour. Much misconception prevails outside Burmah on this point. Having been working eight years in the Province and recruiting abour from Mogôk to Rangoon, I can write with some experience. When on the Ruby Mines I went out toward he Chinese frontier, and on two expeditions brought in 800 men without giving any advances, recruiting the Minthas, a race half Chinese and half Shan, big heavy built fellows. Half of these were put on to the Trunk road which is metalled for carts: one branch goes to Bernardmyo, the other to Magôk, some 90 miles in all.

The late Major Kunhardt, R.E., some time head of the Company, an officer of immense experience, from Pathans to all the different races of the Deccan, said they were superior to any he had seen at pick, shovel and hoe. The officials on the Frontier said *the supply was practically limitless*; they told me that they would have liked to bring their families with them. There are blacksmiths, sawyers, wood-carvers, rock-drillers, revetting-builders, and excellent jungle men. A strong manager of labour can get plenty of work from them with kindness and a firm hand. Next come the Burmese, who, after ploughing and putting in their seed, are available for eight months in the year: clever jungle men, but do not like earth-work. 3rdly, the Shans, who are industrious and hard-working. 4th, next to the Mintha are the Kerins, a law-abiding, brave, simple-hearted race, who have not been taught earth-work. Many thousands of the above are available. No energetic recruiting is done, and no advances are required. There are no Europeans engaged in the planting industry, excepting some Catholic missionaries and Captain Pelly.

When in the Henzada P.W.D. Division, I had 2,500 men the first year, and 3,000 the following year begging for contract work at rates it would not pay a European to touch. About 15,000 of these Telugu men—big, docile, steady fellows, are settled in Burmah, beside 100,000 who go back in a year or two to their country, and return.

These facts will go to prove that labour of the best sort is *abundant* without giving big advances.

There is the Railway now going up beyond Mandalay, and a fine river service of steamers. The officials gladly help *bonâ fide Planters with capital*, and the climate is first rate for coffee and tea. It is so rich that the paddy fields never require any manure. The cow is looked on as unclean by the Burman. An old Brahmin race taken prisoners many years ago graze their cattle.

4½, Esplanade, Calcutta,
3rd January, 1898. E. A. Quarme.

PRESERVATION OF GRAIN FROM WEEVIL.

[Professor Church.]

The only cheap and perfect application for the prevention of the attacks of weevil upon corn and grains consists in the employment of bisulphide of carbon. The quantity required, provided the grain is kept in closed vessels, is very minute—not more than 1½ lb. to each ton of grain—so that 8*d*. is the cost of preserving a ton of wheat. The bisulphide leaves no disagreeable taste or smell behind, and the quality of the grain remains unimpaired. When bags are used, instead of the iron cylinders specially prepared for use in the bisulphide process, the protective influence of this chemical soon ceases and a fresh application of the bisulphide must be made. In either case the liquid is applied as follows. A ball of tow is tied to a stick of such a length that it can just be plunged into the middle of the vessel containing the grain. The tow receives the charge of bisulphide like a sponge, and is then *at once* plunged into the sack or cylinder and left there, the mouth being closed tightly. When necessary the stick may be withdrawn and the charge (1 oz. bisulphide to 100 lb. grain) renewed.

[F. W. Cabaniss.]

I have been trying for several years a number of experiments with the object of finding a cheap and simple method of preventing the ravages of this weevil. I think that I have found it in the use of naphthalene powder. My method of using the powder is here given for the benefit of the grain dealers of Burmah. It is best to place the naphthalene powder at the bottom of the bin or bulk of grain. To accomplish this take a bamboo, about 1½ inch in diameter and long enough to reach from the top to the bottom of the bulk of grain. Punch the joints out of the bamboo, so as to be able to pass a stick through from one end of the bamboo to the other. Have the stick made to fit the cavity in the bamboo. Pass the bamboo, with the stick in it, down through the bulk of grain from the top to the bottom. Withdraw the stick, and drop into the top of the bamboo about half a teaspoon of naphthalene powder. The bamboo can then be drawn out, as the naphthalene is safe at the bottom of the bulk of grain. If the bulks are large this should be done once to every ten feet square of the bulk. Repeat the application every 15 or 20 days as the powder evaporates.

The weevils that can leave the grain will do so, and those that cannot leave are killed by the odour of the naphthalene. I do not believe that naphthalene thus used can cause any injury whatever to grain. For seed purpose the germinating powers appear not to be affected in the least. For marketable grain the colour is not affected, and the odour will leave in a short time if fresh naphthalene is not applied to it. The quantity of powder used is infinitely small in proportion to the quantity of grain, and the powder is entirely destroyed by evaporation, so that for food purposes the effect is *nil*.

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DISTRICT ASSOCIATIONS.

COORG.

PROCEEDINGS of a General Meeting of the Coorg Planters' Association held on Tuesday, 7th December, 1897, at the North Coorg Club, Mercara, at 2-30 P.M. PRESENT:—Messrs. H. F. DAVY, H. R. EAST, JAMES T. MORGAN, W. H. SPROTT, and H. M. MARTIN, *Visitor*. Mr. W. H. SPROTT *in the Chair*.

Exchange Question.—It was resolved that this Association do support the policy of the U. P. A. S. I.

Mercara Sanitary Board.—Read proceedings of meeting of the Board, and the action of the representative of this Association was approved.

Agricultural Chemist.—That for the present at any rate this Association is of opinion no funds should be allotted for the purpose; the results of private enterprise and experiment are necessary before further action is taken.

Fraserpett Bridge.—Mr. Davy again brought to notice the dangerous state of the approaches to Fraserpett Bridge and the perfunctory manner in which the barbed wire was fastened to a few posts on either side of the road. This subject was last brought to the notice of Government in October 1896, but apparently nothing has been done.

The Honorary Secretary wrote regretting his inability to attend, also that the exigencies of crop would prevent a large meeting so late in the year.

With a vote of thanks to the Chair.

H. G. PARSONS, *Hony. Secy.* W. H. SPROTT, *Chairman.*

NELLAMPATHY.

PROCEEDINGS of a Meeting held at Alexandra Bungalow, December 22nd, 1897. PRESENT:—Messrs. EVERINGTON, FENTON, C. HALL, W. MORRES and J. C. ABBOTT, *Honorary Secretary*. Mr. C. HALL *in the Chair*.

Roads.—Read letter from the Dewan with copy of letter addressed to him by the Acting Chief Engineer, also extracts from "Dewan's Proceedings," dated 19th September.

Resolved "That this Association regrets that the Cochin Government has abandoned its intention of constructing a cart road to this district, but hopes that the bridle-path proposed as an alternative will be taken in hand without delay and speedily completed."

Read letter from the Dewan giving the Association permission to erect (at its own expense) a foot bridge at the bottom of the old ghaut.

Hospital.—Read letter from the Resident, and the Honorary Secretary's reply stating that the Association was prepared to fulfil its share of the agreement, and that the Dewan had already been informed of this.

Read letter from the Dewan stating that the matter was pending before the Resident, to whom he had referred it for advice.

Leaf-disease.—Read letter from the Secretary, U. P. A. S. I., with copy of letter from Mr. E. Quarme, who claims to have a cure for leaf-disease.

The meeting agreed with the Chairman, U. P. A. S. I., that it should be left to individuals to make arrangements with Mr. Quarme if they desired to take up the system.

Re-opening of the Mints.—This question was postponed until the next meeting, when it is hoped that there will be a larger attendance.

Agricultural Chemist.—The Honorary Secretary stated that a list had been circulated but no subscriptions had been obtained, the general opinion being that no good was likely to accrue from employing an Agricultural Chemist.

Coffee Scale and Lady Birds.—Read letter from the Secre U. P. A. S. I., asking to what extent this Association w subscribe towards the purpose of introducing coccinellidæ in S. I The Honorary Secretary stated that only Rs. 40 had been colle so far, but it was hoped that more subscriptions would come in.

Central Rice Store.—Mr. Watts being unable to attend the m ing, this question was postponed. The Honorary Secretary requested to ask Mr. Watts to draw up a scheme for working rice store.

Committee.—The following members were elected:—C. E. Jones, P. W. E. Watts, R. Milne, A. Barnes and J. C. Abbott

A vote of thank to the Chair terminated proceedings.

C. HALL, *Chairman.* J. C. ABBOTT, *Hony.*

CENTRAL TRAVANCORE.

THE Annual General Meeting of this Association was hel the Penshurst Bungalow on Monday, the 3rd of January, w there were present:—

Messrs. F. M. Parker (*Chairman*), H. W. Baker, H. J. Bland L. Crawhall, R. H. Goldie, R. S. Imray, W. H. Lehay, N. Macgo Spurgin, C. H. Williams, J. Arnold, F. Bissett, R. W. Court R. W. Cole, Hickley, B. Laurie, Macgrath, H. J. Place, Hon. W Wilbraham, and A. E. Veale (*Hon. Secretary*).

The minutes of last meeting having been taken as read, Chairman called on the Hon. Secretary for his report for past year, which was as follows:—

"MR. CHAIRMAN AND GENTLEMEN,—

It is customary at this, the Annual General Meeting of the A ciation, for the Honorary Secretary to submit a Report of the ceedings of the Association for the past year; but as Mr. Acw on his resignation of office, at the last meeting, read you so full complete a report, it is unnecessary for me to do more than al to what has taken place since then.

Travancore Game Preservation Regulation.—This Act, w was first agitated for by us, three years ago, has now been pa after having been sent up to the Supreme Government three t before receiving sanction. It is gratifying to note that the r lation is almost a facsimile of the draft Act drawn up by Me Bensley, Dighton, Acworth and others, with the main exceptio the clause relating to licenses, the absence of which is much t regretted. Our thanks are due to Mr. Bensley for the time trouble he has spent in pushing the matter. Section IV. of the R lation confers on certain Government servants and others, who from time to time be appointed, power to enforce the Act. Dewan, however, I regret to say, does not deem it expedient to co such powers on private gentlemen, until some experience of working of the Act has been gained. I fear the usefulness of regulation will, in consequence, be minimised.

Kumili-Kuravanooth Ghat Bridge.—Ever since the comple of the Periyar Works, this bridge has always been in a more or dangerous condition, and for ten days or more at the end of Nov ber cart traffic across it was impossible. Many and frequent been our complaints to the Local Fund Board, Madura, but litt no notice is taken of them. I accordingly wrote to the Chief Secret Madras Government, pointing out the loss incurred by planter this district owing to the stoppage of traffic up this ghât, and gested that either a new ghât road, keeping on the right bank o Periyar overflow, be made, or that a suspension bridge be b instead of the present structure.

My suggestions have been forwarded to the Madura Local F Board for report, and the bridge has now been temporarily repa

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but I recommend members not to depend solely on the Cumbum Valley for rice supply, and the bridge may again collapse, without warning.

Periyar Bridge—Ferry.—The resolution passed at the last meeting was duly forwarded to the Dewan, and the Chief Engineer has been called upon for an estimate. I have heard, however, unofficially that an estimate has been sanctioned, but how soon the work will be put in hand is not known.

European District Magistrate.—The appointment of a 1st Class Magistrate to these Hills is under contemplation, but H.H.'s Government do not see their way to appoint Mr. Vernade or any other European to the post.

Crime in the Cumbum-Periacolum Valley.—All correspondence in connection with the Arnakal dacoity case was sent to the Planting Member of Council, but he does not recommend our going up to Government on the subject, as he considers the case not only weak but incomplete.

Its weakness is mainly owing to the Kangany's ignorance as to how to proceed against his assailants, and its incompleteness is due to Mr. Acworth having in the bustle of his departure for England either lost or mislaid one or more letters from the Police, as well as having not made a *précis* note in the Association letter book of some of his own.

The Superintendent of Police, Madura, has promised to institute a fresh enquiry into the case, and until after the hearing on the 10th instant of the case, taken by the Kangany against the police, dacoits, and others in the 2nd Class Magistrate's Court, at Uttamapalyam, I do not propose taking any further action.

U. P. A. S. I.—Your Committee have fixed this Association's subscription for the current year at one anna per acre on all cultivation over two years old, and half anna per acre on all cultivation under two years old. This will amount to about 350 rupees, part of which has already been paid.

A circular letter from the Chairman, to all producing Associations and Chambers of Commerce both in India and Ceylon, *in re* the re-opening of the mints, was circulated to the members of your Committee and met with their approval.

Medical Fund.—This Fund has now seen the first year of its existence, and I think we may congratulate ourselves on its establishment. To the efficient medical aid we have now provided for our coolies we may attribute the great decrease in sickness during the past year as well as to the more healthy season.

As you are aware the Association applied to H. H.'s Government for four medical grants-in-aid in support of the Fund: two only, however, were recommended by the Durbar Physician, which your Committee accepted. The Honorary Secretary wrote to the Dewan on the 20th September to this effect, but no reply has yet been received, neither have the grants been paid, although reminders have been sent on the 5th and 21st November, and again on 20th December. Your Chairman, however, took the opportunity of the British Resident passing through the district a few weeks ago to invoke his aid and support, and as Mr. Rees is shortly returning to Trevandrum, I trust the time will not be long before we obtain them.

Telegraph Subsidy.—Our share for the year ending March 31st, 1897, amounted to Rs. 181-5-3.

Accounts.—The accounts both of the Association and Medical Fund are laid on the table, and will be printed in the Proceedings. The former shows a small credit balance of As. 14-7. You will note that Mr. Acworth charged nothing for postages or attending the U. P. A. meeting as delegate. An acreage assessment of As. 4 per acre (exclusive of the Medical and American Tea Funds) will be required to meet this year's expenditure. The latter account shows a debit balance of Rs. 2,636-3-11, all of which but Rs. 236-3-11 will be met by the Government grant if paid from January 1st 1897.

I now place my resignation in your hands."

A. E. VEALE,
Honorary Secretary.

Proposed by Mr. Parker, and seconded by Mr. Laurie that the Report be formally adopted, and that a vote of thanks be accorded to the retiring Hon. Secretary for the energetic and successful manner in which he had carried on the duties of his office.—*Carried.*

The officers having resigned their posts, the Association proceeded to the election of those for the current year, when the ballot showed the following results :—

F. M. Parker, *Chairman.*
H. W. Baker, *Hon. Secretary.*
B. Laurie, R. S. Imray, R. A. Goldie, } *Committee.*
A. E. Veale, *Hon. Secretary, Medical Fund.*

The Chairman having briefly returned thanks, it was proposed by Mr. Imray, and seconded by the Hon. V. B. Wilbraham, that the Hon. Secretary of the Medical Fund be considered to be a member of the Committee.—*Carried.*

Read correspondence regarding the Arnakal dacoity case.—*Recorded.*

Medical Fund.—The meeting having gone into Committee on this subject, after a long discussion it was finally decided that the following postings should be ordered: the Doctor to reside at Pambanar and the four Apothecaries to be stationed at Bon Ami, Church Hill, Washpudingy and Arnakal, these positions being considered most central for the medical work of each Apothecary's division, and that the Committee do draw up and sanction any required plans, estimates or agreements with Messrs. Imray, Cole, Goldie and Holder respectively, as to the erection of the necessary buildings, their cost &c, on a basis of an annual 10 per cent. rental. Any changes involved in the above transfers to be carried out on completion of the required accommodation. The grouping of estates under each Apothecary having been approved, the details of same are appended hereto.

Proposed by Mr. Veale and seconded by Mr. Laurie, that the Hon. H. P. Hodgson be requested to again undertake the duties of Planting Member of Council, on the expiry of his present term of office.—*Carried.*

The accounts for the past year were then passed and the following papers were laid on the table :—

Proceedings of the Nilgiri Planters' Association.
" " Lower Pulneys Planters' Association.
" " Wynaad " "
" " Coorg " "
" " Shervaroy " " (2)

A vote of thanks to the Chairman and late Honorary Secretary who conducted the business, concluded the meeting.

H. W. BAKER,
Hon. Secretary,
C. T. P. Association.

January 6th, 1898.

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Cacao, best Trinidad varieties, Rs. 12—50 per dozen pods, equal to about 300 seeds.

Erythrina Lithosperma, new crop now ripening, Rs. 10 per lb.

Vanilla Cuttings, Rs. 10 per dozen.

Coca, small leaved kind for low elevations, Rs. 4 per 100; Rs. 20 per 1,000; large leaved kind for high elevations, Rs. 5 per 100; Rs. 30 per 1,000.

Giant Kew Pine Apple, Rs. 10 per dozen suckers; 5 dozens for Rs. 40.

Pepper, best variety, Rs. 10 for 1,000; new crop now ripening, 5,000 for Rs. 40.

Para Rubber. Orders being booked for the coming crop, available in August-September, quantity limited.

Sisal Hemp, Rs. 12 per dozen suckers; 5 dozens for Rs. 50.

Liberian Coffee. Orders being booked for January delivery, price according to quantity.

Cinnamon. Orders booked for May-June delivery, price according quantity.

Ramie. Seeds Rs.5 per ounce; root cuttings, Rs.10 per 100, and Rs. per 1,000.

Fourcroya Gigantia, (Mauritius Hemp,) Rs.10 per 1,000 seedlings; lar quantities on special terms.

Bowsting Hemp. Root cuttings, same price as Ramie; large quantit on special terms.

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PLANTING OPINION.

A WEEKLY JOURNAL

WRITTEN BY PLANTERS FOR PLANTERS.

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ADVERTISEMENTS.—From the 1st October, 1897, the charge for line advertisements will be: 4 as. per line for the first, 3 as. for the second, and 2 as. for the third and succeeding insertions. Five-line advertisements from Subscribers will be inserted for three issues for one rupee; non-Subscribers will be charged two rupees.

DOMESTIC OCCURRENCE.—The fee for inserting a domestic occurrence will be *One Rupee* for each insertion, payable in advance.

N.B.—Remittances should be sent to the Manager, "Planting Opinion," Esplanade Row, Madras.

IMPORTANT NOTICE.

The Business Offices of this paper having now been removed to Madras, all remittances should be made payable to the Manager of *Planting Opinion*, 3, Esplanade Row, Madras, who will also attend to all advertisements, &c.

Letters to the Editor should be addressed to Coonoor, as usual.

SEASON REPORTS.

NOTICE.

TO OUR SEASON REPORTERS.

Please post your next reports to reach Madras on Friday, the 28th January, 1898.

S. E. Wynaad. DEVALA, 19*th January.*—*Weather.*—Since my last report the weather is bright, but at nights very cold, and on the 12th, 13th, 14th, and 15th there was very strong wind. *Crop.*—Paddy harvest is nearly being finished. *Grain.*—Salt 8, rice 8, cholum 19, and ragi 18 seers per rupee. *Health.*—Fever. *Labor.*—Sufficient.

Coorg. POLLI BETTA, 19*th January.*—*Weather.*—Overcast and rather threatening-looking on 14th, partially so on 15th. No rain, it is gratifying to note, resulted. *Crop.*—Picking and stripping still in progress. Pruning being pushed on with. Some blossom has been pushed out, but nothing to speak about. It will make no difference anyway. Price of grain has been going down very low in past two shandies. Fevers, coughs and colds prevalent still. *Interesting item.*—Planters' At Home to Chief Commissioner at Club yesterday evening.

Kil Kotagiri. NILGIRIS, 18*th January.*—Rain wanted for the young clearings; otherwise coffee doing well. Spike forward; promise very good for early blossoms. Artificials coming more and more into use; cattle manure is nearly abandoned. The estates belonging to the "Nilgiri Plantations Company" look lovely, and should do well next season. Pruning is started in a half-hearted way. Grain still high, but labour is still plentiful. The prices of crops have differed considerably this year on the different estates; one lot of the Nilgiris Plantations Company fetched an average of 95/- odd, while another estate fetched only 73/-. There are estates for sale, but the sellers want too much, and the buyers won't go up.

NOTES.

Caffeine and tea-house waste. In Cachar a large business is now done in buying up tea-house refuse of all sorts, especially sweepings which contain a large quantity of tea-dust. This they buy purely for the purpose of extracting the caffeine therefrom.

The American tea law and Canada.

An interesting effect of the American tea regulations is seen in the export of the rejected tea to Canada, where it is sold under all sorts of fancy names. The adulterated and faked teas being only Japanese and Chinese stuff, a further impetus will thus be given to the consumption of British-grown teas in the dominion.

Ceylon exports for 1897.

The decrease compared with 1896 in the export of coffee was 3,364 cwt., which brings down the total exports to 19,383 cwt. Cinchona shows a decrease of about 50 per cent., being only about ½ million pounds last year. Tea of course shows an increase, put at almost 8 million pounds, instead of 9 millions in Gow, Wilson's estimate. Cacao also shows an increase, the export last year being as much as 34½ thousand cwts. Cardamoms, cinnamon and dessicated cocoanuts also show a gratifying increase.

South Indian teas.

In their monthly report, dated London, 10th December 1897, which has only just reached us, Messrs. Arbuthnot & Co. (P. Macfadyen & Co.) say :—

"Nearly 3,500 pkgs. were brought forward, the average realized being 6¾ per lb. *versus* 7 per lb. for 3,000 pkgs. In October, a few of the Travancores had useful coloury liquor and were in good request, among the best being those from Vembenard, Glen Mary, Bon Ami, Fairfield, Penshurst, and Carady Goody, but the others were somewhat disappointing in cup. From the Neilgherries shipments from Kodanaad and New Hope were of fair flavor, and the one from Glendale was well competed for (being of fine quality)."

Tea-growing in Russia.

A very interesting letter on this subject has been published in the *Times of Ceylon*, written by a Ceylon planter who visited the famed estates personally. The deductions he draws from what he saw are as encouraging as any British planter could desire. What the actual cost is per lb. he could not ascertain, but as labour is 1*s.* 6*d.* per day, and no machinery is used, it must be very great. The duty, 1*s.* 10*d.* per lb., is certainly a great pull in favour of the Russian grower, but if the Russian planting industry expands to any degree, Government is very unlikely to let the indigenous tea go free. We hope to publish fuller details of the letter under notice in our next issue.

Prices of some "new products."

It may interest some of our more go-ahead readers to note the prices of certain so-called "new products," products, that is to say, to which planting attention is only fitfully attracted. In the *Chemist and Druggist* of the 1st instant, we note that crude *camphor* varies in price from 86*s.* to 91*s.* per cwt. *c. i. f.*; *ipecacuanha* 7*s.* 3*d.* to 7*s.* 6*d.* per oz. fine Rio; *oil of lemon-grass* up to 8*d.* per oz. at the highest; *orange-peel* from Malta and Tripoli 1*s.* per lb. good new quality. Old peel is worth 5*d.* to 6*d.* per lb.

Most, if not all, of the above products could be raised at a good profit and, moreover, without interfering in any serious manner with estate work.

Books, diaries, calendars, &c.

Mr. G. Parameswaram Pillai, B.A., the Editor of the *Madras Standard*, has sent us a copy of his book, "London and Paris through Indian Spectacles," whi has been running through his paper. Mr. Parameswara Pillai is certainly as keen an observer, if not keener, Europe as the ordinary globe-trotter is of India. T chief interest of the book will be of course to the educat native who has not yet had the pleasure of a Western tr Messrs. Davidson, of "Sirocco" fame, have sent us a ve handsome diary and blotter, replete of information co cerning their well-known inventions and containing also large store of useful facts for ready reference. We ha also to acknowledge a useful wall-calendar from Mess Addison & Co., of Madras.

Nyassaland a second Brazil?

One of our home exchanges h evidently got hold of some very cu ous ideas of the coffee industry British Central Africa. Its present yield is some 400 to or so, but, says the *H. & C. Mail*, "the time seems not distant when the Protectorate will become a dangero rival to Brazil in the European market." This is laying the colours just a little too thick! All the same, Nyass land coffee may in the near future, if the output increas at the same rate as it has been doing in the last few yea be a very serious competitor with East India. For t coffee grown there commands excellent prices in Londo while communications to the coast are improving. It news to us, though, that B. C. A. grows tea also.

Death to poochies.

The idea of using a light to attra night-flying insects is of course new thing, but the following of a successful Continen poochies-trap may be of value. By the way, how many our plantation pests develop into night-flying insect How about the unknown tea "flush-worm"?—

"A lamp is enclosed in a six-sided lantern, each of whose sides h an opening provided with a strong glass lens and a conical reflect through which insects seeking the light can enter. The upper p of the lantern consists of a pyramidal cover, furnished with ven lators that permit the passage of hot air, but prevent the escape insects. Below, it is closed by a similar pyramidal part invert which leads to a vessel with lids in which a sweet perfumed mixt has been placed. Having entered the lantern, the insects can get out, and they fall into the receptacle below from which they removed. The apparatus is placed in an open field or in a tree."

Liberian coffee in the Straits.

Things are not promising now days for growers of Liberian coff in the Straits at all events. T huge Brazil crops have so reduced the price of Liberi that the margin of profit is growing very narrow indeed. Straits planter, in fact, writes to an exchange, asserting th estates which cannot give 3½ piculs per acre (over 4 cwt without manuring will not be able to pay their way. F prices are assuredly very low. One correspondent affir that at Selangor the local price for No. 1 Liberian is abo 21 dollars per picul (133 lbs.) Once the price was dollars. The great fault lies apparently in the want of central curing establishment, and consequent bad curin bad grading, and poor packing. In fact, it is asserted th were the coffee sent home in barrels or tea-boxes, ve much higher prices would be obtained. The state of Stra coffee in London is said to be appalling,—dull, mould looking, and half-decayed. A large area of coffee la planted up in small blocks by Javanese in the old days high prices are now reverting to jungle, forming hotbe

of disease and weeds to the neighbouring plantations. Things don't look happy in the Malay peninsula.

The Zanzibar clove-crop. Advices from Zanzibar state, according to a home exchange, that all plantation-owners in Pemba report a very poor crop of cloves this year. Pemba will probably never again equal the big crops of former years. Many of the trees are getting old and woody, and only have a little foliage at the top, although, if they had been properly pruned, they might now have been in their prime. As it is, some of the shambas present the aspect of forests rather than plantations, and the trees are being used for timber. A very fine sample of Penang cloves recently received from London has been the subject of much interest both in Zanzibar and Pemba. This sample was specially selected to show what good cloves should be like when properly prepared for market. Several experiments have since been made with the object of ascertaining whether it is possible to obtain such good results in Zanzibar. Apparently, it is not enough to bestow attention upon the drying only. It is necessary that the buds, when they ripen, should be picked singly, not in bunches, as is usual in Zanzibar.

Grevellia gum. In view of the remunerative trade in gum, it is a great pity that planters have not been able to take their attention off the depressed state of crops and prices to that of attempting to turn to remunerative account the products of some of their shade and fuel trees. To most planters the very term "remunerative shade-trees" is an abomination. Yet, in the grevellia, we have a tree that might very possibly turn out to be a source of serious income. Briefly stated, the question resolves itself into this: two sorts of gum can be obtained from the tree. One sort exudes from the superficial layers of the bark in great quantities. This gives a milky white gum of no market value, though possessing great sticking powers. The other sort is obtained in some way or other from the inner layers of bark. It gives a clear, transparent gum of great value. What no one seems to know at present is how to extract the valuable gum by tapping or other means. The U. P. A. might well address the Reporter on Economic Products to the Government of India on the subject. If interest is excited on the subject, we shall be glad to re-publish all the information that has already appeared in these columns.

Quinine in 1897. In the quinine market, 1897 will be known as the year when "the turn" came that has been so long looked for, says the *Chemist and Druggist*. At the Amsterdam sales in January of this year, the lowest unit on record (2·12c. per half-kilo.) was reached. At that time bulk quinine was worth 9*d.* per oz. From January onwards the bark-unit began to improve, but quinine continued to decline for some months. In September, however, after a unit of 6·27c. had been reached at Amsterdam, the tide turned with a vengeance, and quinine rose from 9½*d.* to 12¾*d.* per oz. Since then the unit has reached 7·90c. (in November), and quinine has advanced to 1*s.* 3*d.* per oz. in second-hand. But so heavy were the quantities of bark thrown upon the market at Amsterdam that at the December auctions the unit dropped to 7·00c., and at the present time quinine can again be bought in Mincing Lane at 12½*d.* per oz. To form an idea of the quantities of quinine that are passed through the manufacturer's hands, it will suffice to state that the bark offered at this month's sales in Amsterdam represented 1,462,011 oz. of sulphate of quinine. The future of the article appears to be fairly hopeful. The cinchona-shipments from Java for the eleven months ending November 30 were 3,890,000 kilos., against 4,594,500, 4,098,650, 4,193,350 and 3,475,500 kilos. in the same periods of 1896, 1895, 1894, and 1893 respectively.

The tea trade in 1897. We commend the attention of our readers to Messrs. Gow, Wilson and Stanton's trade report for 1897, published in full in our Market Report with the exception of the elaborate table of figures. The yearly consumption of tea is about 500 million pounds, of which India and Ceylon now supply over half. The increase in consumption being more than that in production, the apprehension of over-supply is decidedly less alarming. The rate of consumption per head in England last year was the highest on record, being 5·83 lbs. against 5·67 in 1895. Compared with 1896 the consumption of Indian, Ceylon and China last year were: Indian 125½ M. against almost 123 M.; Ceylon 85½ M. against over 80¼ M.; China 17 M. against over 19¾ M. (a great falling off); other kinds (Java, Japan, etc.) 4 M. against nearly 4¾ M. With regard to foreign markets, trade follows the English language, for North America and Australia are our two most important external markets, though even taken all round, the expansion in new markets is most gratifying. The exchange of course was unduly high last year, being 1/3 15/32 against 1/2 13/32 in 1896. The average season price was also lower, *i.e.*, 8·99*d.* against 9·13*d.* for 1896. The average of the *calendar* year was 9*d.* last year against 8¾ in 1896. The total Indian production will be only about 2 million pounds more than the preceding season.

Turning to Ceylon, the increase in protection is expected to be about 9 million pounds. The 1897 price was 7·71*d.* against 8·21*d.* in 1896.

Java teas are improving greatly and are freely used in the United Kingdom.

"Odd-lots" of coffee in London. Year by year the increased business that has to be got through in the auction sales of coffee and tea exercises a pressure in the trade to frame regulations whereby such business can be profitably expedited. Tea brokers have long ago come to the conclusion that the sales of large and small breaks of tea should not be sandwiched together, and rules have been made that breaks under a certain size should be dealt with separately after the larger parts had all been disposed of. Last month a largely attended meeting of the coffee trade took place to consider the advisability of similar regulations with regard to the sale of the berry. Luckily for Indian planters the great majority of the members of the trade present declared against any alterations in the sale rules. The main objection to relegating small consignments together, and classing them as "odd-lots" to be sold after the large lots had been disposed of, was that the finest sorts of coffee imported into the country, *i.e.*, East India, Jamaica and Nyassaland coffee, would be relegated among these "odd-lots." On the other hand, it

was pointed out that during the last few years, and especially since the development of trade with Columbia, an enormous lot of small lots were placed on the market. The sale of these small lots took up far more time than that of large consignments, and it was alleged did not attract the desired competition of bidders. It was suggested, as an alternative proposal, that all East Indian and Ceylon be excluded from the present odd-lots rule, with the exception of triage, black, brown and cherry pickings. If this had been carried, it would have been possible of course to effect the change desired. It was, however, negatived by a substantial majority.

Tea shares in 1897.

Writing on the course of the market for tea shares in 1897, the *H. & C. Mail*, says:—"The marked feature of the earlier half of the year just drawing to a close was the continued steady appreciation in public favour among investors of the better known and soundest Indian and Ceylon Tea Companies shares. This continued to prevail almost up to the time of publication of the last of the 1896 reports. Further progress, however, in this direction was, at that juncture, stopped, first by Jubilee celebrations (which had an adverse influence on *all* stock business), but chiefly by the directly unfavourable effects of famine and plague, and subsequently of seismic disturbances (earthquakes), which specially affected Assam and the surrounding tea regions. These causes undoubtedly shook the confidence of investors in tea securities for a time, and caused a gradual but steady decline in share values (even those of the *preference* shares), which climaxed about November in the case of all excepting a few of the very highest class stocks. Even now, as the year closes, there has been no very marked recovery. The oldest and most favoured shares, it is true, still stand higher in most cases than they did a year ago, but most of the junior issues and the companies standing in the second rank are considerably lower than they then were. The prominent exceptions are the Assam Company, the Dooars Company, Doom Dooma, the Bramapootra Company, and the newly-formed Empire of India and Ceylon Company.

"The Rupee Exchange, owing to the persistence by the Indian Government in their closed-mint policy, has been kept up considerably higher than in 1896, and it now almost seems as if, for the present at least, a 1*s.* 3*d.* to 1*s.* 4*d.* rupee were likely to continue. This has, of course, been against planting profits, though the tendency of sterling prices for tea seems to be to assimilate itself to the new conditions. It may here be noted that the balance of Indian mercantile and banking opinion seems opposed to a continuance of the new policy, as tending to hamper the *export* trade, on which India and Ceylon mainly depend for their prosperity. A *stable* rupee, however, seems to exercise an extraordinary fascination upon the minds of a strong minority. So far as tea planting is concerned, it would appear that, *in the long run*, a stable rupee at not over 1*s.* 3*d.* to 1*s.* 4*d.* would not permanently injure the enterprise, as increased extension and concurrent over-production would probably thereby be curtailed."

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Correspondence and matter for publication to be sent to Editor, this paper, Coonoor.

LETTERS TO THE EDITOR.

TO REAR DUCKS.

SIR,—In answer to the letter from "Duckling" in yo paper of the 8th January, I can say I have been rather succes ful with my ducklings. They must have lots of room to ru about and lots of clean water to play in. When first hatche out, ducklings should be fed on well-boiled rice mixed with little milk and water, and as they grow bigger, plain boiled ri with water, and later on bran and rice should be given. F the first month, young ducklings should be fed with the ric milk and water at least four times a day and a little at a time for the next few months three times a day will be enoug "Duckling" makes a mistake in giving ragi and the "noo choo" of rice to very young ducklings. I hope "Duckling will have more success in the future.

BIG DUCK.

GERMINATION OF SEED: A QUERY.

SIR,—I believe it to be generally held that to hasten an induce germination, it is often found that soaking in hot wat (as hot as the hand can bear it) previous to sowing is to be r commended. Being under the impression that the seed *Erythrina lithosperma* must be treated with all care to arrive a large percentage of germination, I soaked them as aforesai When the water was cool, I laid them out in a very thin lay on a nursery bed, between two layers of cloth covering th whole with a thick layer of fern. This I did because thought germination would be more successful thus, than sown direct in the bed. The weather succeeding this operatio was dry, and the seeds were kept carefully moistened. On th third day, I found to my great disgust that mildew had set i and so I immediately planted out the seed in the beds.

I have not the least idea how they will come up. Evident soaking such seed in hot water is a mistake.

SEED.

A VISIT TO THE E. LITHOSPERMA GARDENS.

SIR,—The very interesting accounts of the good effec of *E. L.*, when planted as shade amongst coffee that hav appeared, from time to time, in the columns of your pape cannot fail to have attracted the attention of all those inte ested in coffee, and as I have lately had the opportunity visiting both Mr. Ewart's and Mr. Nelson's estates, and see its wonderful recuperating effects, it has struck me that a fe lines on the subject may not be without interest to my brothe Coffee Planters. Mr. Nelson has gone so thoroughly into th *chemical* and *analytical* part of the business that it is quit unnecessary for me to do more than to allude to the wonderf chemical properties of the tree, and the resulting improvemen to the soil as shown in the analysis he has obtained. O

COFFEE SHADE TREE.

Sun-dried Erythrina Lithosperma loppings, &c., contain p ton:—

61·50	lbs.	Nitrogen.
57·38	„	Potash.
14·92	„	Lime.
13·68	„	Phosphoric Acid.

Seed cured under Messrs. Sutton and Sons' advice.

Orders should be booked early for the coming crop of seed fro the parent trees of above analysis at Rs.6 per pound contain about 2,000 seeds. *Germination guaranteed.*

Only thornless variety extant, and is not procurable anywhere sa from the

MANAGER, ARIENKOW ESTATE,

Shencottah.

visiting the estates, which, I believe, had been more or less neglected before they passed into the hands of the present proprietors, I was first taken to a small field, in which no *E. L.* had been planted, but which had been manured steadily with *cattle manure*, fish, etc., and was fairly well shaded with trees of sorts. My own opinion, from the appearance of the coffee, was that the sooner it was abandoned the better for the proprietor! The next field, of the same age, similar soil, etc., *but shaded with E. L.*, showed a fine healthy growth of wood, and promised to give in the coming season a crop of at least 8 cwts. per acre. One field of younger coffee, about six to seven year's old, was a perfect sight, and reminded one of the good old days before leaf-disease had developed into the curse it has proved itself. And so on through both the properties, wherever *E. L.* has been planted, the coffee is in good heart, and although the trees still suffer from attacks of leaf-disease, they come round again in a most wonderful manner, which can only be attributed to the marvellous recuperative powers of what, I think, will prove to be the "Saviour of Coffee."

If these few hurried lines should be the means of inducing others to go in for *Erythrina lithosperma*, I am confident of the results that will be obtained, and can only regret that the existence of such a wonderful "natural fertilizer" has been so long unknown. I may perhaps be excused for mentioning, as some small "guarantee of good faith," that I have had a long experience in coffee, having opened my first tote in

"Sixty-two."

GENERAL ARTICLES.

THEORIES BY A NEW HAND.

Nurseries.

I have just been making some nurseries, for the reception of some few thousand *Erythrina lithosperma* seed by the way, and would like the advice of your more experienced writers on the subject, for the result, to my mind, is highly unsatisfactory. The only available ground I had was steep, having a fall of about 1 in 3. The beds being four feet broad, necessitated a lot of cutting, and the steepness of the banks resulted in a great deal of waste of land, say a couple of feet per bed almost. I obviated the loss of ground by supporting the lower sides of the beds by means of logs of wood, held up by two-foot pegs driven into soil. Well, the result is that the inside half of the bed consists largely of raw subsoil, while the outer half is good surface soil. In some places a thin layer of subsoil is over the whole surface of the bed. It scarcely needs pointing out what a wretched seed bed this gives to the plants.

Naturally, the result disgusted me not a little, though I hope the hardy *E. lithospermas* will come on all right, despite everything. Query, how could I have cut the beds so as to have an even depth of surface soil the whole area of the bed?

Not seeing any escape from the dilemma if cut beds are made, I straightway evolved a theory which I intend to carry out in practice at the next opportunity.

With flat land, of course, my theory has nothing to do. It is only with steep land of any gradient of 1 in 4 or more. After felling and clearing, the burn should be made as thorough as possible, then a deep digging with quintanies and mamotie-forks to, say, a foot or a foot and a half. Great care to be taken that the raw subsoil is not brought to the surface. The soil merely requires to be *loosened*, not turned over at all beyond the surface-soil depth. This, to my mind, is most important. I have during the last two years witnessed the very striking bad effects of subsoil being brought to the surface in nurseries. All large roots, stones, &c., removed, inspect the lay of the land carefully. Choose the depressions running down the face of the slope as your down paths, which might also serve as down-drains. For down-drains are absolutely necessary in my scheme.

Then take a road-tracer and peg out your beds at a careful slope of 1 in 40, or more if the land be very steep, from down-drain to down-drain. A convenient width for a bed is of course 4 feet, to allow of weeding, &c., easily from each side. But if the land is very steep, it will be better to make the beds narrower, say 3 feet. Allow 1½ feet for the path. The earth taken from the path (which will act as a cross drain, receiving the water from the three or four feet of bed surface above it) is placed of course on the bed below. The tracing and making of beds will begin of course at the top. The surface of the bed will be at a certain slope, it is true, but there can be no wash over such a small surface. If, owing to the steepness of the land, you have traced your beds at a greater slope than 1 in 40, it may be necessary to make an arresting bank of earth some 3 to 4 inches high across the bed. This is to arrest and turn off any water that may be flowing along instead of across the bed.

It looks extremely complicated on paper, but if you take the trouble to follow it out on a piece of paper, it will be seen how very simple it is in reality.

Now consider its advantages. There is a great saving in labour effected in not doing any cutting, while the danger of bringing up the raw subsoil to the surface and thus spoiling the seed-bed is entirely avoided. The disadvantages, what are they? The only suggestion of danger lies in wash. As it is usual to erect pandals of sorts over nurseries, the wash cannot be worth considering at all; for remember each bed is protected from the wash of the upper beds by its path which acts as a drain, so that the only wash each can suffer from is the wash from its own few feet (3 to 4 feet) of surface.

While I am on this subject, I should like to say a few words about the style of nursery I have often seen. To save the trouble of either carrying water a few feet up the hill, or of cutting a water-channel a few hundred feet, nurseries are often made as near the stream bed level as possible. The soil is never thoroughly drained. Ten to one, the subsoil is impervious clay. To "sweeten" the soil before planting out the seed, the land is often dug up carefully a couple of feet or so. The sour subsoil—for subsoil it may be, despite its rich loamy appearance—is brought up to the surface, and the seed-bed is spoilt for the next year. No wonder it is in such cases that complaints are made of the wretched way the young plants come up, and that lavish manuring is needed to bring them on in good time. At high elevations, to the disadvantages already enumerated, must be added the chilliness of the air in localities so near water, and the danger to the young plants from frost.

My pen has run away with me, and no mistake. I began by asking for advice, and end by ladling it out wholesale! Still, I should be glad of criticism of any sort.

PLANTING DIALOGUES.

I.

"WHAT'S the earthly use of knowing anything about science, all theory and bosh, when one has to earn one's living as a planter? It's my private belief, young fellow, you're doing more than merely wasting your time in reading those precious primers of yours. You're spoiling what little good was ever in you, if you want to become a 'practical planter.'" Thus spake old Jack Bentley, one of the finest specimens of the old-style planter I had come across. His chief listener was one of his assistants, young Green, who had ventured an attempt to teach his boss the elements of scientific agriculture. I was there too, of course, but merely sat tight and listened, jotting down the score. Green had often heard the same sort of advice from his boss, whenever he ventured to disclose a portion of the vast amount of scientific knowledge which he thought he possessed. He had paid his premium, not altogether the rule in South India, had worked out two years on the tote, and was sticking on till he got a paid billet.

"But look here, Bentley, you've told me that before. Do you really mean to say that agricultural science is of no use at all to the agriculturist out here, be he paddy farmer or coffee farmer? The principles of science are the same east and west, north and south. They apply equally well to planters out here as to farmers at home. It's ridiculous to"——

"Gently, my friend. I know you're A 1 at bucking. Bucking doesn't make the trees crop, dear Green. In your vast experience out here, has it ever struck you that the biggest talkers are usually the biggest failures? I don't want to be personal, you know. But if you're going back to first principles, we may as well change the subject. What I want to know is, how science can do us any good at all? How about leaf-disease?"——

"What good science can do us? Why, it can do us all the good in the world, as I demonstrated to you and the chaps at the Club last week."

"It didn't do you much good with the gloves, Green, my boy!" put in Jones, another of Bentley's assistants. This was a sore point with Green, for he fancied himself at boxing as at most things, and he found a very ugly, if unscientific, customer one night at the Club.

"Never mind about boxing, we're discussing the science of planting. You mentioned leaf-disease, Bentley. In Ceylon, as we all know, all that the then scientific knowledge could do was to predict the total extinction of coffee in the island. None of the practical planters of the day had any faith in the advice. The result is known to all."

"That's all right! So all that science could do with leaf-disease was to tell us that it couldn't do anything? Candid, at all events. All the good in the world, eh?"

And Bentley chuckled, as did we all. Decided score for Bentley. Slightly ruffled, Green stuck manfully to his guns.

"You must not forget that the disease was quite new to science, and that the climate of Ceylon was most favourable to the development of *Hemeleia vastatrix*. Travancore seems to be in much the same box. But elsewhere in South India leaf-disease, though bad enough, is not nearly so virulent. It is still bad enough to almost cripple the industry, and what are practical planters doing to mitiga its ravages?"

"All they can, my boy. If you can tell us anythin more, have it out."

"Yes, you are doing all you can, except, as Mother Seig says, 'the one thing.' What do practical planters kno about the disease at all? Some said shade kept it off. S everyone went in for shade. Then they found that shade ke off crops as well as disease. So the shade is being thinne out rapidly. Others pin their belief in what they ca autumn manuring, using the most various mixtures chemicals and artificials, without knowing anything abou them beyond their names, which are those of the men wh are reputed to have used them with success elsewhere."

"D——n your chemicals," cried Bentley. "Muck, m friend, muck, good old-fashioned muck, is all the plan want. Chemicals are stimulants, and neither man nor pla can live on stimulants!"

"No, but he can't live without them, can he?" put Green, smartly. For Bentley often swore that whisky, take in moderation—every man his own moderator—was indi pensable in the tropics. He lived up to his theory, too.

"Besides, how about damning chemicals when you can get enough of your beloved muck? How about those tons of mixture you ordered last month?"

"Well, well," growled Bentley, "I want to know what th 'one thing' is you bucked about now?"

"It is what I have been trying to demonstrate the who time. You have tried every possible thing you can think to cure leaf-disease. A couple of years or so ago you thoug you had got the best of the struggle. It's the old sto again now. You are ready, some of you, to try hair-braine patent schemes of curing the disease evolved by the fanc ful imaginations of retired planters, long out of touch wi latter-day planting conditions. Why, in the name of a that is sensible, cannot you club together to obtain the a of a scientist?"

"What good would that do? Haven't you just told that science has had a shoot at it already in Ceylon, an has been badly beaten? Stick to the point, young ma stick to the point."

"The climate and conditions of manuring, cultivation an so on were not the same in Ceylon as they are her Travancore is a nearer case in point. Why does not coff die out here as it did in those districts? It cannot altogether the climate, for, look at any of our good distric further north. A wet end of the country often gets alon just as well as the drier end. There must be somethin then beyond the climate. Some conditions of soil, shadin pruning, manuring or cultivation that tend to make th attacks severer. What are those conditions? How can practical, plodding planters possibly find time to tra them? Does it bore you too much to listen to me?"

An indistinct murmur which ended in a few impatie exclamations of "No, have it out as quickly as you can, an let's get on to tennis."

Green was too interested in hearing himself talk to chilled by the unflattering attitude of his listeners. H went on quicker than ever.

"Well, it's like this, you see. Supposing a scientist to a long tour round the district on the leaf-disease enquir He would visit as many representative estates as possibl note all details of climate, exposure, altitude, systems

manuring, and take careful samples of surface and sub-soils from the particular fields where leaf-disease was worst, and also from the healthiest fields. The samples analysed, he would probably find a very marked similarity in the leaf-disease soils, differing probably in some important characteristic from the healthy soils, which likewise would presumably bear a strong family resemblance to each other. Supposing the most important difference were to lie in the presence or absence of certain forms of iron compounds—to follow 'Nitric Acid's' argument—the next thing would be to find out how they were harmful. To a trained agricultural scientist this should not be difficult. To neutralise their harmful effects would be by no means impossible. There you are, my friends!"

"I'm hanged if I can see it! Your whole argument is based on 'supposing.' Supposing he couldn't find any difference at all in the soils, what then?"

"You would at all events have the satisfaction of knowing you had done your best," Green replied lamely.

"For my part, I much prefer the satisfaction of keeping my money in my pocket."

"If everyone held to that attitude, progress of any kind would be impossible. The man who first tried poonac for coffee had to suppose that it might succeed. Supposing no one had tried it, where would half the estates in the country be, as there certainly isn't enough cattle-manure to go round?"

"Besides, in estimating the chances of success of any particular experiment, one should be more or less guided by the results achieved in similar directions elsewhere. Typhoid, small-pox and many other diseases were once just as mysterious and fatal to men as leaf-disease now is to coffee. Science has practically conquered the former. Look at cholera in this country. Even if we haven't discovered the exact originating cause perhaps, we know enough to have stayed its ravages enormously. And as for——"

Here a chorus of yells put stop to all further spouting.

"Stow that, old man! We'll hear the rest of it next year. Send it to the 'P. O.' Editor; he'll appreciate it, you bet. We're off!"

With my help, Green actually acted on this last suggestion; and if this paper is printed, we may inflict further lots, 'cause Green hasn't got his billet yet. He says some one is sure to be attracted by the stuff and offer him a rattling good billet right off the reel—Poor Green!

ASSIMILABLE NITROGEN AND LEAF-DISEASE.

Retention of Soil, Nitric Acid.

Just as one may prove in a very exceptional way that soils of a highly ferrous nature, possess a peculiar difficulty in forming this product of oxidation, *i.e.*, Nitric Acid, so it is just as difficult for these soils to retain it. The most careless reasoning *must* show this to be so, and the lower the state of that oxidation of the soil, the poorer must its retentive power be. Yet that RETENTION, or retentive power of a soil for this important assimilable nitrogen, must admittedly be as vital a point as its FORMATION.

It is worthy of note that this peculiarly high ferrous nature, as revealed in Mr. Robinson's analyses, is common to all the coffee soils of South India at least (reasons already given for saying so). Consequently the ability of these soils to retain what little nitrates they can form is worthy of the closest notice. Especially so where tropical rainfalls have to be taken into consideration. For where, as before said, Nitric Acid in a soil is enabled to form and be kept, or at any rate given artificially and then kept and assimilated by the plant, then assuredly will follow the complete prevention of the disease if it has not gone too far (for at that time the roots are dried up and lose their power of feeding). A cure of the disease will even be effected. Health of soil, (*i.e.*, oxidation) and sufficiency of alkalies in the soil to catch, combine with and retain this acid (*i.e.*, Nitric Acid) must be essential for its success. Analyses of the diseased plant, together with analysis of the plant in health, will be produced to show the most striking lack of those glutinous or oleaginous bodies, composed of nitrogen and called Albumenoids or Proteids. These nitrogenous bodies of the plant, of much the same fluid consistency and composition as the white of egg, should be present to keep the coffee tree free of that typical dried-up hardened appearance, as they *certainly* are the strength and energy-givers without which the plant is simply a log, simply organic matter which gets decayed by bacteria. Lose these and the whole of strength and life must cease to exist in the tree. Their composition is something as follows: C_{53} H_y N_{16} S_1 O_{23}. Nitrogen forming a sixteenth part therefore of this glutinous compound. Analyses of the diseased plant will prove this loss of fluid bodies to you, and therefore I say that the retentive power of the soil for that assimilable nitrogen deserves the same attention which its formation should also receive, and in the coffee soils the *full* and *complete* analyses (they must be this) will prove how exceptionally poor both formation and retention are.

Poor oxidation means poor retention.

How does this poor retention show itself? Poor oxidation again and lack of alkalies. Take the first of these—oxidation, or rather lack of it. Let it be remembered this nitrogen food (Nitric Acid) is a gas, pure and simple. It is therefore perfectly soluble in water, occurs in the best of soils only as a small decimal point, but its extreme value remains nevertheless. With such extreme solubility in water, it allows itself (unlike the more solid mineral matters) to be freely carried away from the roots by each rainfall. Drainage waters from cultivated fields, and especially after the first rains, when the soil has formed it afresh, after the dry weather, are found impregnated with this food. The freedom or ease by which this proteid-forming constituent is removed from the soil by rainfall is too well known to need comment, but I wish to show that our South Indian soils have more difficulty in retaining this food than have other soils.

For instance, imagining a certain amount of Nitric Acid forms from organic matter (especially on the surface soils) it dissolves in water (*i.e.*, in rain water) taken from the roots, filters through a soil abounding in low oxides of iron—perhaps in the form of ferrous, perhaps as pyrites. Although these low oxides may not be actually soluble in water, yet, with the great greed iron has for oxygen, it is perfectly understandable how this water, charged with this product of oxidation, will pass through a soil and this N_2 O_5—this Nitric Acid, will yield up some of its oxygen (because it is an unstable compound) to these low oxides of iron. This, at the expense of that difficult forming Nitric Acid, would oxidise the iron, which has this greater avidity for oxygen. This assimilable nitrogen in cases of low oxide soils, simply acts as a carrier of oxygen to these low oxides of iron, and a source of loss, therefore, is found of that extremely important Nitric Acid. It has simply acted as a carrier of oxygen to the low oxides and itself becomes destroyed. There is a source of loss, therefore, *that must ensue* in soils of poor aeration, and one can well imagine how much greater that loss must be when it is carried to depths of three or four feet where that greater lack of oxygen exists. As a rule, three or four inches of rain would take this Nitric Acid below the roots only to return

again by capillary attraction to the surface in the next spell of fine weather; but in this case, taken to these much more unaerated depths, it must oxidise these low oxides and return again in poor quantity, to say the most. Here comes in a reason, therefore, I say, before applying Nitric Acid in the form of nitrate of soda or of nitrate of potash, of first oxidising the soil by means of drainage, tillage and certainly by the use of carbonate of lime. Part of the Carbonic Acid (CO_2) of the lime will, like the Nitric Acid, dissolve in water and carried by this means of rain through the soil, will part with some of its oxygen and convert these low oxides to the higher, *i.e.*, the ferrous state to the ferric. When Nitric Acid, therefore, meets these low iron oxides, it will not become dioxidised, it will not become merely a carrier of oxygen, but remain itself that useful food because tillage, drainage, and that strong oxidising agent, carbonate of lime, have done their work beforehand and prepared its way. Hence the good results in practice that are observable in combating Leaf-disease by the use of lime, previous to a nitrate application or an organic manure like oil-cake.

Ferric Nitrate. Ferric nitrate is an insoluble (in water) compound of Nitric Acid and iron. It was Knopp, I think, who noticed that nitrate of soda placed on an iron soil, showed its effects on vegetation much to his surprise for a whole year. He accounted for this by the Nitric Acid leaving its soda base and attaching itself to the much stronger base of iron in its highest oxidised state, and through every adversity of rainfall, kept that vegetation rich in its nitrogen principles a whole year. It was mentioned before that a 2-oz. application of soda nitrate showed this effect in giving a nitrogenous appearance and keeping off Leaf-disease a whole year. It was mentioned also the soil was almost nothing but stones both surface and sub-soil, while the organic matter of the soil contained a high percentage of sand. There was every reason, therefore, for safely pre-judging that the iron in this soil by perfect natural drainage, was exceptionally rich in iron in its highest state of oxidation. If, therefore, this was so, a strong base for Nitric Acid was afforded, and since ferric nitrate is *insoluble in water* but *soluble in weak acids*, it would be clear how Nitric Acid could be fixed in the soil by this means during the heaviest of tropical rainfalls, while at the same time this ferric nitrate (soluble in weak acids) would be attacked by the weak acids of and assimilated by the roots of the plant. Other bases or other nitrates, say of soda, lime, magnesia, lime being perfectly soluble in water would be carried away from the roots and lost by rainfall.

Leave alone however any such question, it is repeated that on that obviously healthy soil, this 2-oz. of nitrate of soda placed on in March entirely prevented disease for one year, carrying it through two monsoons and bearing a 5-cwt. crop, while that part of the estate previously treated with lime carried its effects for still a greater period. At any rate the low oxide state of soil, such as these coffee soils show themselves to be, must be fatal to Nitric Acid preservation, while it seems, by Knopp's suggestion that iron can, in its highest state of oxidation prove itself the best preserver of this assimilable nitrogen. The whole thing, however, needs laboratory experiments to prove what is the best way of aiding the soil to retain this fugitive of fugitive foods under heavy rainfall.

Sulphate of iron (Ferrous sulphate) through its great solubility (besides hindering the formation of Nitric Acid) must have still worse effects on Nitric Acid, than the lesser soluble ferrous silicates. As one knows, it forms in the less unaerated, wet and highly organic matter soils. Being perfectly soluble, it can travel freely through the soils, and if such a compound *does* occur in these soils (the acidity of some of these s rather point to it) it is easy to see how this low oxide in hot or dry weather can ascend through capillary attracti meet Nitric Acid in its ascent and destroy it, while it itsel converted to the ferric sulphate. Maercker has shown t where $1\frac{1}{4}$ % of this objectionable salt occurs, then there found no trace of Nitric Acid. Leave the whole question soluble ferrous alone however, it is possible it rarely occurs coffee soils, and that the acidity of the soils is due to hu acids, on the other hand *it may be* there and should be *very ca fully* tested for, and if found, corrected.

At any rate ferrous soils in every way are against the rete tion of Nitric Acid.

Lack of Alkalies in soil. Lack of alkalies in soil would be further aid in the loss of assimilal nitrogen. It will be noticed by t analyses of Mr. Robinson, that four out of six of the so analysed have acid traces, showing insufficiency of alkalies combine with and neutralize these acids, whatever that sou of acidity is *but proving lack of alkalies.*

Were these various uncombined (with acid) bases such lime, magnesia, potash, soda more plentiful, there would more resistance to Nitric Acid gas in water being lost. That rainfall, in charging itself with this Nitric Acid which h formed in the drier months, filtering through the soils, wou come in contact with one or some of these alkalies, whic though perhaps not stopping, would certainly give a distinct hindering action to this valuable acid. A nitrate of one those or other bases would form and certainly must tend to gi a check to this food which is ever ready to get lost by rainf in the most healthy of healthy soils.

Laboratory experiments might be useful. Again the whole thing needs caref laboratory experiments to prove wh will make the soils most retentive of th food. Just as in Mr. Robinson's analys the retaining power of a soil for water is tested for, so c this retaining power of a soil for Nitric Acid in both wet a dry weather be tested, for it would be most helpful to know t result, especially as nitrogen is such an expensive manure a especially as in every way it is possible to prove Leaf-disea can be entirely discounted by its presence if in an assimilal form.

For instance, a sample of soil could be taken and a solution nitrate of soda of known strength could be poured on to t soil. Allowing a certain lapse of time for chemical action take place, a known quantity of water, say equal to ten inch of rain, could be passed through the soil. Knowing the quant of Nitric Acid given to the soil by this nitrate of soda soluti a most useful test could be made to see how much Nitric Ac remains in the soil after this equivalent of ten inches of ra had been poured through it.

But more interesting still would it be to take a like sample soil, place it into a thoroughly good state of oxidation, by mea of lime or potash, place on the same an amount of nitrate soda as in former experiment, pass precisely the same amount water through it and at the same rate as before, and then te how much the retentive power for this Nitric Acid has be improved and increased.

This would certainly be a guide to know how this constitue which has to form these soluble albumenoids of the plant, cou be better retained by the soil, while the test would be a simple ou

Actual stubbornness of soils. Mr. Robinson's analyses of the coff soils have been brought forward, believi that they show a still higher state of l oxidation and lack of health than has hitherto been shown, y

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efore treatment in the laboratory they had the most unfair reatment, a treatment which should have given, one would ink, a totally different appearance to the oxidation of these ils. Unsuspecting that these soils so lacked that life principle xygen, they were sent home in porous gunny bags. For three onths they laid about before analysis was made, air poured rough them to such an extent that all moisture had left them d they were eventually after these months of unnatural eration, poured out on to the analyist's table like a dry owder. Facts which one certainly would have thought would ntirely alter their nature—place them into a better state of xidation and health than they showed. With all this un-irness to them before treatment, they show these exceptional igh amounts of ferrous—these low amounts of carbonic acid, ese low amounts of soluble salts and that frequent acidity. t is nothing more than a direct stubbornness—analyses after ch a treatment, allow me to say so. The cause of it can only e low oxides of iron, perhaps pyrites, continually splitting up y oxidation and giving continual new work for oxygen to do. o see the soils having gone through such exceptionally good pportunities for oxidation as these did, it only makes the form-tion and low retentive powers of these soils for Nitric Acid, he more impressive. Only in one set of agricultural books do I now that this class of soils is treated upon at all at length and hat is in Storer.

NITRIC ACID.

THE SUNFLOWER.

PROBABLY the cultivation of no other plant has, during the last few ears, increased so greatly as that of the sunflower. In Russia alone early a million acres are annually devoted to its cultivation, while n Germany and other European States it is grown in immense uantities. Some of our farmers think that in the large, hand-ome, smiling face of the sunflower they can see that there is money o be made by its cultivation. That there is a good opening to row sufficient for home consumption seems to be beyond the range f doubt.

The oil is of great value, scarcely inferior to that obtained from he olive; it is of a clear pale yellow colour, limpid, almost odourless nd with a pleasant mild taste. For salads and many other omestic purposes it is equal to, if not superior to, olive oil. It nakes excellent soap, of great softness. Sunflower zweep (Sun-lour soap) is extensively used throughout Germany, Switzerland, nd Russia. For painting, especially for greens and blues, it is argely employed.

The seeds, roasted and ground, make a good substitute for coffee; hey also make demulcent and soothing emulsions. A fine sweet read is made from the flower. The flowers produce a large amount f honey; they also give a fine yellow dye. The tall woody stems, when burnt, produce a valuable potash. The pith of the stems may e used in surgery, instead of moxa. The leaves, either fresh or dry, nake excellent fodder. By treating the stems like flax, a very fine ibre is produced, nearly as fine as silk.

Poultry, pigeons, and small birds are very fond of the seeds. If a ead of the ripe seed is suspended near a window in the cold weather, t will prove a never-failing source of attraction to many of the small irds. Fowls must not be overfed with the seeds, or they will put n too much fat, and reduce egg production, but given in moderation, he seeds will, during the winter, answer as well as animal food, and ssist in producing early eggs.

When mixed with other food, horses and cattle take to the seeds eadily. One pint of seed given to a horse per night produces good ffects. Pigs fatten very quickly on the seed alone.

When the seed is used in the manufacturing of oil, the refuse nakes excellent oil cake for fattening cattle, and for this purpose is sed largely in Russia, Holland, Sweden, Denmark, and also in England, where it is regarded as the best obtainable food. It is aid to be superior to rape or hemp seed in its flesh-producing roperties, and one German farmer reports that he increased the lesh of an ox 2lb. a day by feeding him on sunflower cake. An ncreased milk supply is said to be produced when fed to cows.

The growth of the plant in favourable soils is very rapid, and its absorbing and exhaling power very large. It is, therefore, suitable for growing around unhealthy low localities. A good-sized plant is said by Lacoppidan to exhale 1½ lb. of water during a hot day.

The sunflower is very exhausting to soils. Although it will grow in many kinds of land, the best results are obtained from that of a deep rich calcareous nature. Old mortar makes an excellent manure for it. Open, porous land is infinitely better than a close, compacted soil. Sandy or stony soils require to be heavily manured. The impoverishment of the soil by its culture can be remedied greatly by burning the stalks and spreading the ashes over the surface, and the land could, of course, be kept in good heart by a liberal use of bone-dust, blood manure, guano, or other artificial fertilizer. In Russia, if the stalks and leaves are left in the land used as manure, no further fertilizer is needed for some half-dozen years.

In good land and in ordinary seasons the plants require no artificial watering, but irrigation is necessary sometimes.

There are several varieties of the sunflower. The white-seeded one is said to produce the most oil, but the large black-seeded kind, called the Russian, is the best for poultry and cattle-feeding. In Europe a dwarf species named *Helianthus Indicus* is reputed to be the most profitable for general cultivation.

All the commercial kinds of sunflowers are annuals, and attain maturity in about five months from the time of sowing the seed. Six pounds of seed will sow an acre. From September to early November is the best time for sowing; the exact time must be governed by the locality, whether an early or late one. The season must also be taken into account. Directly all fear of frost has vanished, then sow the seed. Three feet by three feet is a good distance for plants of the larger growing kind to stand, but the dwarfer varieties may be grown closer. The hoe or scarifier must be kept going between the plants to destroy weeds and keep the soil loose.

When the leaves of the plant are dry, the seeds are usually ripe, and the heads fit together. If the seeds are allowed to get too ripe, the wind will shake the seed out. Birds may do considerable damage, and in removing the heads a quantity of seed will drop.

The heads must not be placed in heaps, or they will soon rot; neither should they be put in a close building, but in a good airy shed, like that used for curing leaf tobacco. When a small quantity only is grown, the seeds may be readily taken out of the heads, or they may be thrashed out, and then screened through a fan-mill. If it is intended to keep the seeds for a time, whether in the husk or after being cleaned, it is imperative that they be thoroughly dry, or they will soon become mouldy and spoil.

An acre of plants well grown will produce up to fifty bushels of seed; each bushel will yield a gallon of oil, and 1,500 lb. of oil cake may be obtained from the acre. If the stalks are burnt, half a ton of potash will be produced.

Wheat succeeds splendidly after a crop of sunflower. It is stated that locusts will not touch the growing plant, and cattle do not care very much about it.

At present there is no great demand for sunflower seed, but if it could be produced pretty cheaply, so that it would compete with maize and other poultry foods, it would become largely in demand. Its value is becoming more and more known daily. Our farmers should commence the cultivation of the sunflower by first growing a little for home use.—*Queenslander.*

BRICK TEA.

PROCESSES OF MANUFACTURE.

WE are accustomed to hear so much about the increasing consumption of tea on the continent, and of inferior qualities being preferred to the good liquoring classes, especially about brick tea, which is in great demand in Russia, that it may serve a useful purpose if we give our readers some idea as to the process of manufacture of brick tea. There can be no doubt that the reason for the importation of brick tea into the Russian market in such large quantities is the facility of carriage, and the economy in freight charges. Indian consumers, however, are accustomed to drink tea of the finest colour and flavour, and know how to appreciate the article,

nothing but the best satisfying the palates of English and Anglo-Indian tea drinkers, whether at home or in India. Brick tea is made in Thibet and China, but it is very doubtful whether residents in this country have ever had the hardihood to try the product of either country. It may interest them, therefore, to learn how this compressed tea is manipulated.

The following is the process in Thibet :—

1*st.*—It must be understood, that brick tea is not made from the young leaves like ours, but from the old ones cut off in the pruning in the cold weather.

These leaves, stripped from the branches that have been pruned off, are *boiled* in a large cauldron in water passed through ashes, (keranee ka panee) until the water is nearly evaporated, and the leaves are in a glutinous state, which takes about an hour and a half.

2*nd.*—On being taken out of the cauldron they are beaten with a large wooden mallet, in a box made sufficiently strong for the purpose, until they are in a pulpy state.

3*rd.*—They are hammered into the mould with the mallet, and a little congee-water from boiled rice, or starch, is mixed with them to help them to cake. Of course the leaves should be slightly above the mould when it is full, as the pressure put upon it soon brings the brick down to its proper size.

4*th.*—They are put into the press, and kept there for 24 hours. Of course the press is managed in such a way that any number of bricks can be put in at the same time, and those that are ready can be taken out without interfering with the rest.

5*th.*—On taking the bricks out of the press, they should not be taken out of the moulds at once, but left for 12 hours or so; and on being taken out they should be placed in a rack over a slow fire that they may *thoroughly dry*:—this is very important, or they will get mouldy.

6*th.*—They should then be stacked in a dry place, such as the loft of a drying godown, and should be occasionally looked to and wiped, if any signs of mildew are observable on them.

This is the whole process of manufacture. The apparatus required is--a copper "dekchee." The largest procurable is the best. A stoutly made box and mallet. The moulds, 15 inches long by 9 inches broad, by 6 inches deep. These should be dove-tailed with a pin to go through the corners so that they can be opened out and put together again without injury to them or their contents.

The best kind of press to use in a beam about 20 feet long fixed at one end on an axle and weighted at the other end. Any amount of pressure can be put on by this means, and it is preferable to a screw, as it is a continual pressure.

The following is the method of producing brick tea in China :—

The first operation is to sift the dust and reject all the sand and rubbish contained in it, usually amounting to about 5 per cent. It is then placed in a winnowing machine having three different sized sieves, with troughs corresponding, and passed into baskets. The residue, which is too coarse to pass any of the sieves, is taken out and trodden until it is reduced to the proper consistency, when it is placed in iron pans over a charcoal fire until it is sufficiently brittle when it is again taken to be winnowed, and this operation is repeated until it has all been sifted to the requisite degree of fineness. Three sizes are produced, the coarser ones being employed to constitute the brick, while the finest dust is only used as a facing. The dust having been properly sifted, the next step is to prepare it for pressing, and this is done by exposing it to the action of steam for three minutes, and it is this steaming that robs brick tea of its scent and flavour, and for which a remedy is eagerly sought. The old-fashioned apparatus of native design consists of six iron boilers heated by charcoal, and having spaces over, which are fitted with rattan covers. When the dust is to be steamed, it is spread out on a sheet of cotton cloth placed over the boiler and covered up; but with the improved European apparatus the dust is simply put into iron boxes and the steam then passed through them. After having been sufficiently steamed to make it adhesive, the dust is put into a strong wooden mould, on the moveable cover of which the trade mark of the "hong" or firm is engraved, (so as to leave the corresponding impression on the brick) and firmly wedged down. It is then pressed and placed on one side for two or three hours to cool. Each brick should weigh one catty, and all those that do not come up to the proper standard of weight, or are defective in any way, are rejected and re-made. For this purpose they are taken t rotatory mill, constructed of two heavy circular stones, moved b horizontal wooden bar, and working in a channel where the c demned bricks are thrown, and crushed as the wheels pass over th Having again become dust, the operation already described is in its details, repeated. The hand press turns out sixty baskets a c with 25 per cent. failure bricks, while the steam press produ eighty baskets a day with only five per cent. of bad work, and saving by the employment of the improved machinery, amou to one tael a basket, or according to the above stated outturn, eig taels a day, or about £20 sterling. The bricks found to be cor in weight and free from defects are stored in the drying-room f week when they are carefully wrapped separately in paper, packed in bamboo baskets containing sixty-four bricks each. Gr brick tea is made in the same manner, but of leaf, not dust, the bricks are larger, weighing two pounds and a half each,thirty going to a basket when packed for export.

THE PLANTER.

DISTRICT ASSOCIATIONS.

WYNAAD.

PROCEEDINGS of an Extraordinary General Meeting held at Mep Club on December 22nd, 1897. *Present*:—MESSRS. ABBOTT ATZENWILER, BEHR, DAY, DE FONBLANQUE, R. LAMB, MACKIN D. MACKENZIE, W. R. MACKENZIE, B. MALCOLM, J. R. MALCOL S. MALCOLM, POWELL, ROBINSON, WADDINGTON, R. K. WAL WINTERBOTHAM, WEST, WRIGHT, and HOCKIN, *Honorary Secret* Mr. R. K. WALKER *in the chair*.

1. Proposed by Mr. Lamb, and seconded by Mr. de Fonblan that a Chairman and Committee be appointed for this Associa annually. Mr. Atzenwiler, seconded by Mr. Winterbotham, prop as an amendment that matters remain *in statu quo*. For the am ment 3; against 14. The amendment was lost.

For the original proposition 13; against 3. The proposition carried.

2. Proposed by Mr. Waddington, seconded by Mr. W Mackenzie, that the Committee be composed of 2 members for Vayitri, 2 for the Meppadi, 1 for the Vellera Mulla district, and Chairman and Honorary Secretary *ex-officio*. Carried *nem. con.*

3. Resolved: that the Committee be elected by ballot, and Chairman and Honorary Secretary by nomination and a sho hands at the Annual General Meeting.

4. Some discussion took place as to the number of Commi and general meetings to be held annually. It was generally ag that the general meetings should be held at not longer inter than once a quarter, and oftener if the Committee thoug necessary, so that the general body of members may not lose interest they now take in the affairs of the Association. Also Committee meetings should be held about once a month, unless emergent business should come up for disposal. Some mem expressed a wish that general meetings might always be held on first Wednesday in the month, and longer notice of the busines be discussed given than they had lately had.

No resolution, however, was passed on any of these subjects.

5. Read letter from the Chairman, U. P. A. S. I., announcing sudden death of Mr. Digby T. Brett, Chairman of the Plan Conference in 1893, and of the United Planters' Association in 1 The Honorary Secretary was requested to write to Mrs. D. T. B expressing the Association's regret and sympathy.

6. *Election of New Members.*—Mr. Glennie was elected a mem of the Association. A vote of thanks to the chair closed proceedings.

(Signed) R. K. WALKER,
Chair

(„) J. WILLIAMS HOCK
Hony. S

GOLD AND BLOOD.

MANY years ago I knew a man who expended a great part of a large fortune in buying gold, in coin and in bars. This he melted, and with human blood and other unique ingredients, laboured secretly to prepare a mixture that should arrest all disease, renew vitality, and prolong life indefinitely. I need hardly say that he failed. Not only did he fail, but one day an explosion took place in his laboratory which destroyed the fruits of his toil and left him senseless and badly wounded amid the wreck. The rest of his days were passed in an asylum.

Yet he was not the first man who tried that same experiment, nor by thousands. To find the elixir of life was one of the main purposes of the science of alchemy, the barbaric ancestor of the modern science of chemistry. But all that is now discredited. No doctor or student of healing even pretends to possess or to seek an essence of life.

What is undertaken, however, and successfully, is to ascertain the truth about Nature's functions, and to help her perform them when they are impeded by disease.

Illustration of what can be done on his line are plentiful. Here is one: "Twelve years ago," says Mrs. Eliza Matcham, of Armitage House, Sutton-on-Hull, "I had an attack of rheumatic fever. At the same time I had a bad taste in the mouth, poor appetite, and pain and weight at the chest after eating. I frequently spat up a quantity of greasy, fatty matter. Later I was afflicted with rheumatism in my hands and feet. Then I fell into a state of debility which continued year after year. I spent a great deal of money in doctoring, all to no purpose. Finally I was induced to try your medicine. In a short time my food agreed with me, the sickness ceased, I grew stronger, and the rheumatism by degrees abated. Now by taking your remedy occasionally I keep in good health. (Signed) Mrs. Eliza Matcham, June 2nd, 1893."

"For some time previous to 1887," writes another, "I was troubled with a digestive disorder. In the autumn of that year (1887) I got a severe cold, which brought on rheumatism and lumbago. I had great pain in the back and also in the joints. I consulted a doctor, who gave me medicines, and advised me to go to Buxton. I did so, but I am bound to say obtained little benefit from it.

"In January, 1888, I had another attack of rheumatic fever, which brought me down into a very low and feeble condition. For days and days together I was unable to eat or sleep. It was only by hardship and pain that I got about at all. Whilst on a visit to Little Downham, Cambridgeshire, some friends told me of the medicine furnished by you. I used it, and soon found relief, and gained strength. Cheered up and encouraged by this, I continued taking it, and now, by an occasional dose, I keep wholly free from rheumatism and other troubles. (Signed) Philip Hopkin, 20, Maude Street, Grimsby, November 14th, 1893."

The eccentric man alluded to in the first part of this article failed to cure any disease with his odd brew. It was costly, too, as I said. Blood is cheap enough, but bars of gold come high. He was a fanatic and a fool.

But here we have two instances in which rheumatism, a common and dangerous ailment, was cured by Mother Seigel's Curative Syrup, a remedy made not from blood and gold, but from the heating herbs of the fields and forests. And why was it cured thus so speedily and with such seeming ease? Because rheumatism is not a disease of itself, but a symptom of indigestion and dyspepsia. It is *this* universal plague that the Syrup scatters and drives away, its children following after. Thus we keep our blood in our veins and our gold—if we have any—in our pockets.

MARKET REPORT.

Messrs. Gow, Wilson and Stanton's Indian, Ceylon, and Java Tea Report, dated December 31st, 1897, says :—

Home Consumption of Tea reached a higher figure in 1897 than ever before, viz. :—about lbs. 232,000,000 against lbs. 227,785,509 in 1896, and lbs. 221,800,137 in 1895. This increase consisted entirely of Teas from India and Ceylon; their use has steadily increased year by year, not only at home but also in important foreign and colonial markets.

The total consumption of British Grown Tea amounted to about lbs. 261,000,000 in 1897, against lbs. 245,559,775 in 1896, and lbs. 227,106,249 in 1895, viz. :—

	1897. Estimating December.	1896.	1895.	1894.
United Kingdom ...	211,000,000	203,235,573	190,367,123	188,535,730
Foreign and Colonial Markets ...	50,000,000	42,324,202	36,739,126	28,773,885
	261,000,000	245,559,775	227,106,249	217,309,616

As only about 500,000,000 lbs. of Tea are used in the civilized world, more than 50 per cent. was supplied by India and Ceylon in 1897. The increase in consumption was more than that in production. The apprehension of over-supply appears therefore to be decidedly less threatening.

Home Trade. Not only has consumption increased, but the rate per head of population rose above any previous year, viz.: lbs. 5·83, against lbs. 5·73 in 1896, and lbs. 5·67 in 1895.

Indian and Ceylon Teas have almost beaten China out of the market, the quantities of each of the former used being higher than ever, while China has again fallen away :

	Indian lbs.	Ceylon lbs.	China lbs.	Other Kinds lbs.
1897 ...	125,500,000	85,500,000	17,000,000	4,000,000
1896 ..	122,941,098	80,294,680	19,831,680	4,718,256

New Markets. The expansion in this branch of the trade, as shown above, is most encouraging, and justifies the hope that before long outside markets will be sufficient to absorb any probable increase in production. It is remarkable that wherever English is spoken, the trade in British grown Tea has gradually expanded, until now Australia and North America are our two most important external markets, while there is little doubt that South Africa will soon become a prominent consumer of British grown Tea. Russia also uses increasing quantities of Ceylon Tea.

Production. During the year just closed Tea production has been attended with somewhat serious difficulties, viz. :—

1. The exceptionally high rate of exchange ruling, viz.: 1/3$\frac{15}{32}$ against 1/2$\frac{13}{32}$ in 1896.

2. The lower average price realized by the crop compared with that of 1896.

3. Dearness of Rice (the Coolies' food) caused by the famine in India.

These causes affected India and Ceylon, but India suffered another calamity in the recent earthquake which caused direct damage to some estates, and indirectly affected many more.

Indian. The quality of the crop was fair. Assam was up to the high character of last season. Dooars and Cachar were good, Darjeeling was on the whole poor, and Sylhet indifferent.

The following table shows the average price obtained for Teas from the different districts since the commencement of the season, the average for all Teas from that date being 8·99*d.* against 9·13*d.* for corresponding period last season :—

	Pkgs.	Price.	Pkgs.	Price.
Assam	321,477	10¼	313,562	10
Cachar and Sylhet ...	173,723	7	162,773	7½
Chittagong	4,367	7¼	2,111	7½
Chota Nagpore	804	4¾	1,002	4¾
Darjeeling	48,361	11¼	45,138	1/0¼
Dooars	77,311	7¾	85,271	7½
Kangra, &c.	4,936	7½	3,938	7
Neilgherry	4,483	7	2,353	7
Terai	16,800	7¼	9,653	7
Travancore	19,844	6½	17,059	7

The total output will apparently be about lbs. 151,000,000 against about lbs. 149,000,000 last season.

The market has not been subject to violent fluctuations; the tendency throughout has been to lower rates, and perhaps at no period in the history of the trade were Teas of such good quality selling for equally low prices. The average price obtained for all Teas sold on garden account during 1897 was 9*d.* against 8¾*d.* in 1896.

Ceylon. A comparatively small increase took place in the crop; the quality about equalled that of recent years, being of very fair average. The outturn is expected to reach about lbs. 117,000,000 against lbs. 108,000,000 last year. The price obtained for Teas sold in London in 1897 was 7·71*d.* against 8·21*d.* in 1896.

Java. Teas of good quality are now produced by a few of the best gardens and are used freely in the United Kingdom, while the growth of other Estates continues in favor in various export markets.

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WRITTEN BY PLANTERS FOR PLANTERS.

VOL. III.] COONOOR, SATURDAY, JANUARY 29, 1898. [No. 4.

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ADVERTISEMENTS.—From the 1st October, 1897, the charge for line advertisements will be: 4 as. per line for the first, 3 as. for the second, and 2 as. for the third and succeeding insertions. Five-line advertisements from Subscribers will be inserted for three issues for one rupee; non-Subscribers will be charged two rupees.

DOMESTIC OCCURRENCE.—The fee for inserting a domestic occurrence will be *One Rupee* for each insertion, payable in advance.

N.B.—Remittances should be sent to the Manager, "Planting Opinion," Esplanade Row, Madras.

IMPORTANT NOTICE.

The Business Offices of this paper having now been removed to Madras, all remittances should be made payable to the Manager of *Planting Opinion*, 3, Esplanade Row, Madras, who will also attend to all advertisements, &c.

Letters to the Editor should be addressed to Coonoor, as usual.

SEASON REPORTS.

NOTICE.

TO OUR SEASON REPORTERS.

Please post your next reports to reach Madras on Friday, the 4th February, 1898.

Season Reports should be sent to the Printers, Messrs. ADDISON & Co., direct, and not to *Planting Opinion* Office.

Lower Pulneys.

18th January.—Weather.—From 11th to 14th January we had dull muggy weather, thick mist, with a driving rain, day and night; average rain during these four days: Lower Pulneys, 1 inch 10 cents; Siroo-mullay Hills, 1 inch 40 cents. These rains are unusual for this time of the year; they will bring forward some of the blossom, especially on the lower elevations, and a heavy flush of new wood. On 15th it was bright and clear again, and we hope it will remain so till March. *Crops.*—About half in. *Pruning and Forking*—Commenced on some estates. *Health.*—Good. *Labour.*—Sufficient.

Nellampatty (British).

26th January.—Weather.—Strong winds have been blowing all this month and show no signs of abating. Rain has fallen twice since my last report, but not in sufficient quantity to do any material damage. I had 30 cents on Saturday last, but it was not at all general. *Crops.*—Some places have still a little to gather, but majority have finished and pruning is in full swing. In a few cases more than estimate has been gathered, and all over out turns are rather better than usual. *Plant-diseases.*—Very little of any kind showing. *General Health.*—Fair; fever fairly prevalent among coolies. *Labour.*—One or two estates have paid off a lot of labour, and by the end of this month I think about half the coolies will have gone. *Interesting Items.*—It may be news to some people that on these Hills there are no jackals, no hares, and very very seldom do we ever see a crow. One hare was seen the other day, and this is, I think, the second in the memory of the oldest inhabitant.

SUPERPHOSPHATE OF LIME AND HOW IT BEHAVES.

THE great "chemical change" which some of our readers declare to be passing over the planting community seems to have hung fire to such a degree that it requires a very persistent stimulus to keep it going. The most that has taken place appears to be that a rush is being made for what are called chemicals and "artificials." To imagine that any advice is needed as to their proper and economical application seems, to many, perfectly ridiculous. For confirmation of this supposition, we would refer doubters to

the resolutions passed at their recent District Association Meetings.

A very large proportion of those men who are yearly losing confidence in their old stand-by, cattle manure, have only the slightest acquaintance with the foreign substitutes they are now eager for. Of agricultural chemistry they have heard, perhaps. Some talk in a confused way of nitrates and phosphates. Few have more than a superficial knowledge of the subject they at times discuss so glibly. Otherwise, we would never have had the planting industry of South India deliberately rejecting the proposal made at the last U. P. A. Meeting of securing the services of an agricultural expert.

Let us take the case of superphosphates of lime. Every planter has at least heard of its name. Some know why it should be used. A tiny minority know how to use it. What is then superphosphate of lime, why is it used at all, and how should it be used ?

A writer in a Colonial paper answers these questions very clearly. Superphosphate of lime is a soluble compound of phosphoric acid, lime and sulphuric acid. Phosphoric acid is one of the four important—because rarely found in sufficient abundance—elements of plant food. That phosphates play a most important part in plant economy is a commonplace now, but its discovery by Baron Liebig, the founder of agricultural chemistry, was romantic. He found that a certain very fertile wheat district in Sweden owed its remarkably good crops to the presence of a great quantity of decaying bones in the soil. For a great battle had been fought on the spot, and the fields were a huge graveyard. Analysing both the wheat and the bones, Liebig found a large proportion of phosphoric acid in each. The conclusion was inevitable, supported as it was by further tests and experiments, that phosphoric acid was much needed by wheat, and that bones could supply this want. But Liebig also found that raw bones took a very long time to give up all their phosphoric acid. He discovered a way to hasten the process. This was effected by adding sulphuric acid to the bones, which dissolved them into a soft mass called superphosphate of lime.

The outlines of the process are simple enough. You take, say, 620 lbs. of finely ground bones or other phosphates, add 240 lbs. of common sulphuric acid with a little water to replace the moisture driven off by the heat of the chemical action, and the result is 860 lbs. of superphosphate of lime.

In the insoluble raw phosphate, each part of the valuable phosphoric acid was tightly held by three parts of lime (hence called tri-calcic phosphate). The sulphuric acid has altered this little arrangement. This acid has a great attraction for lime, and promptly attacked and possessed two of the three parts of lime that kept the phosphoric acid imprisoned and useless. These two parts of acid and one of lime are now sulphate of lime, of which 3 lbs. are found in every 10 lbs. of the mixture called superphosphate. The phosphoric acid has now only one part of lime (hence called monocalcic) to look after it. In this form it can easily do its natural duty of being eaten by plants.

This duty is a most important one, for no plants can thrive without a sufficiency of phosphoric acid. And the acid must be in such a state as to be easily taken up.

Herein in its very virtue lies its danger. The acid, to be taken up by plants, must be soluble in water. Thus superphosphate is perfectly soluble, *i.e.*, melts like sugar for instance, in water. Consequently any great fall of rain easily carry it away. Worse than this danger even is abnormal fondness lime has for it. So if lime is present the soil, two parts of lime will at once seize on phosphate with its solitary lime companion, and conver into the old useless, insoluble three-part lime phosph (tricalcic). The two extra parts cannot seize on the phosph at the same time ; the first one does its work very quick the other takes a little more time, but effects its purpose aiding in the imprisonment none the less surely.

Now this little episode in the lives of phosphate lime explains a great deal. We remember a case wh a planter experimented in a large way, and most unsucce fully, with superphosphates. The fertilizer had not slightest effect on the plants. He wrote home to manufacturers abusing them roundly for the worthlessn of their wares. They asseverated that the superphospha were of the best, and enquired the exact methods of ap cation. Then it all came out. To dry the soft pulpy m before use, the indignant planter had mixed a large quant of lime with the superphosphate. Overjoyed at this chan the merry molecules of lime had promptly imprisoned phosphoric acid and rendered it useless for the time bei

So that when lime is used at all, it should precede application of superphosphate by six months at least, to g it time to be changed into carbonate by exposure to the soil and rain.

This then is clear. That a wish alone to dabble chemical fertilizers is not enough, if we desire to obtain fullest results. We must either ourselves know all ab their intricate little ways and methods of behaviour or— Why, we must pay some one to tell us !

NOTES.

Coffee hybrids. We commend to the careful tention of our readers the first of series of papers on the " Fertilisation of the Coffee Blosso by a well-known expert, who will be easily recognised his initials " J. C." The article will be found elsewhere

The American sieve test. The very gratifying victory substituting No. 26 for No. 16 sie in testing the teas imported to States has been entirely due to Mr. Blechynden, the Indi representative of the American Market Fund. He worked extremely well, and Ceylon men accord him f measure of praise for his success, which is their's also, course.

Vainghy and ash timber. Thus the *Produce World* :—" I recent number we drew attention enquiries of the English Coach Bui ers' Association and the Imperial Institute for a substitu for ash timber. *Planting Opinion* now suggests Vaing as a substitute. We should be very glad to receive samp of the same from Indian Planters, and to obtain informati here as to the wood's suitability for coach-building."

Ants and ashes. The following recipe for drivi ants away from coffee beds is sent the *Straits Times* from Kuala Lumpur :—" Dig where t

black ants are to be found, and sprinkle cold wood ashes as much as may be necessary. This will drive away the black ants, and will probably prevent the white ones from coming up." The ashes will not only drive black and white, but even red ants, and can be used to keep the little parties away from almost every object dear to their tiny hearts.

Good old "Mariawatta." The yield last year off this champion-bearing estate of Ceylon has beaten even its previous record. The whole acreage of the estate is 458½ acres, and the average yield ran out to 926 lb. made tea per acre. The acreage yield per acre for the oldest and best field, 101 acres, for the last fourteen years is 1,137 lb. Liberal manuring—town sweepings—of course accounts for a good third of the crop. Low country estates in Travancore and the Wynaad may run this grand record close in time.

High-priced Costa Rica coffee. Some time ago we rather startled our readers by drawing prominent attention to the possibility of a great improvement being effected in American coffee, owing to the introduction of European capital. The Sarapigni (Costa Rica) Estate Co. has already shown what can be done in that way by the fact of its last year's crop selling at an average of 96*s.* per cwt. This, too, with imperfect arrangements for curing, must be considered highly satisfactory.

Butterflies and tea. A wild story comes from a Calcutta paper:—"Many years ago, a case of butterflies was sent from Assam to England. A Professor of Entomology, on examining them, pronounced some to have come from China, but was told that such was not the case, as all had come from Assam in India. On receiving this reply, he remarked: 'If that be so, there must be tea in Assam, as such and such butterflies feed only on the tea plant.' This extraordinary statement was reported to the Court of Directors, who ordered enquiries, with the result that the wild tea forests of Assam were discovered!"

Tea seed oil. The sudden and utter collapse of the seed market has again turned the attention of planters, and especially those who grow tea only for the seed, to some means of utilizing the oil. This oil has a certain value, principally for burning. The cake of course would be valuable, to some extent, as a manure. We doubt much though if the proceeds from both oil and cake would repay for the cost of manufacture. Poonac at Rs.2-8 the Bengal maund does not leave much profit for tea-seed cake! The collapse of the market is important chiefly as showing the effects that the prospect of a permanently high exchange have on the industry.

Wood-ashes as a medicine. In the *American Naturalist*, Mr. Stahl, of Illinois, extols the virtue of wood-ashes as a medicine for farm animals, and says that used with discretion no other remedy is required to keep animals in full health. For swine he makes a mixture of wood-ashes, charcoal, and salt, and keeps it constantly before them in a large box having holes in the bottom, through which the animals work it out as they require it. He also speaks well of the mixture for horses, and in thirty-seven years of experience of farm-life has lost only one horse, and that through an accident. The ashes may be administered by putting an even tea spoonful on the oats twice a week; but he thinks it preferable to place a mixture of three parts wood-ashes to one of salt constantly before the animal in a little compartment at one corner of the feed-box. Mr. Stahl also has great faith in the value of wood-ashes when used as a fertiliser.

Plastering up seed. A new method of packing seeds and tubers is quoted from a French paper by the *Gardener's Chronicle*, which seems ingenious and practical. The method consists in moistening a little plaster and embedding the seeds, tubers, or rhizomes, which are to be transported in it. This plan has succeeded well for packing rhizomes sent from Japan, the roots of aquatic plants, the lengthened transit of which is always a difficulty. Enveloped in plaster, the plants, or pieces of plants, are in no danger; they cannot become parched and are kept in a condition of partial moisture. In Australia the method is also employed for the transport of butter. The butter is made up into blocks with rectangular surfaces, to which are pressed slabs of glass of the requisite size. The edges are covered with gummed paper for greater security, and the whole is covered with plaster to a thickness of a quarter of an inch. Plaster being a poor conductor of heat, secures the butter against the variations of temperature, and enables it to be kept longer than is possible under ordinary conditions of packing.

Odam's tea manure. This is a patent fertilizer much in favour just now in Ceylon. The guaranteed analysis is 18 to 20 per cent. soluble phosphate of lime; 4 to 6 per cent. undissolved phosphate of lime; 3½ to 4 per cent. of pure ammonia, and 4 to 5 per cent. of pure potash. Mr. Keith Rollo, Manager of the Wanarajah Tea Company, says of it:—"The results have been excellent, as tea has immensely improved and given remarkably heavy flushes, and when pruned two months ago there was magnificent wood to prune on, which means heavy flushes for another eighteen months at least."

The excellence of these manures has been certified by Dr. Voelcker, of London; Dr. Macadam, of Edinburgh, and others, including Mr. John Hughes, F.C.S., Consulting Chemist to the Ceylon Planters' Association. Messrs. Baker and Hall, the Ceylon agents (who advertise elsewhere), have already this season booked extensive orders for Hatton, Kalutara, and Wattawala. To these districts in a very short time fifty tons of the tea-fertilizer will be despatched. As an instance of what the manure will do, we are assured that on part of one estate the yield was raised from 300 lb. to 700 lb. per acre.

An ideal shade tree. An ideal shade for coffee, says a writer in an exchange, would be a continuous canopy of small-leafed trees with the branches some way off the ground for admitting the early morning sun, the light penetrating to the coffee beneath during the day. The *biliwara* (Albizzia odoratissima) would answer the purpose very well, but unfortunately it has not got much of a spread, and consequently in order to adequately shade coffee with it, it would be necessary to grow a large number of trees which would be harmful as the ground would be permeated with roots. The tree attains

a height of 80 feet in good situations with an unforked trunk of 30—40 feet. It is the best to coppice for fuel and lends itself to nearly every domestic purpose. The Albizzia Muluccanna is a very good tree. It has a good spread, the shade it affords is light, and another advantage it possesses is that the leaves close at night and admit the moonlight to the coffee when there is any. If retained too long, however, it runs a great deal to bole and the roots get a great hold of the ground. It is generally played out in about 20 years. It is a splendid tree in spite of these defects, and in order to derive the fullest advantage from it, relays of plants should be planted, and as they grow up, the older ones should be eliminated. In fact, all trees should be dealt with in the same manner.

The tea market.

Indians.—The market has been practically closed during the last week, says the *P. M. Review* of 1st instant, and transactions have consequently been of a limited character. However, with the opening sales on Monday next, comprising 25,000 packages, a good demand may be expected, as prices are reasonable and the stocks held by the trade are not excessive. There can, we think, be little doubt that prices for most grades have touched the lowest point of the season, and it will probably soon be difficult to follow the teas now obtainable, as many of those of recent shipments are of autumnal flavour. As usual there will also be a larger proportion of these teas coming forward later on, and as these can only be used sparingly by many blenders, owing to the appearance of the leaf, as well as to the risk of changing the character of their blends, it would appear to be quite safe to stock the earlier crop teas at current rates. The more recent advices from Calcutta report that the quantity available for this market will only be about the same as last season, and that future shipments will include a large proportion of very poor teas.

Of Nilgiri teas sold, Kodanaad, which obtained the respectable average of 8½*d.* for 53 packages, was the only estate represented. The Travancore average was 6·80*d.*; Arnakal (180p.) led the way at 7½*d.* with Penshurst (148p.) and Travancore T. C. B. A. (177p.) at 7¼*d.* a bracketed second.

East Indian shade-trees and leaf-disease.

Planters in Nyassaland are very anxious to get some of our better-known shade trees out, notably *the* new shade, *E. lithosperma*. But they are still more fearful of introducing leaf-disease, and the local Government are rigidly enforcing the regulations for the prevention of leaf-disease in Central Africa which prohibit the importation of seeds from India and Ceylon. We have more than once referred to this point. On recently appealing to Mr. Thiselton-Dyer, the Director of Kew Gardens, for his assistance in importing disease-free seed, no consolation was received in reply. In his report, Mr. Dyer says :—

"The coffee disease was introduced into Fiji through the instrumentality of tea seeds from Ceylon. Notwithstanding the splendid attempts made by Sir William MacGregor to stamp it out, it ultimately completely destroyed the coffee industry, which was the most promising planting enterprise in the colony. The Germans, by some unknown means, have succeeded in introducing the disease into their African territories. In the face of these undoubted facts it would, in my opinion, be the height of folly to run the smallest risk of introducing the disease into British Central Africa, where its presence would be an irreparable disaster. Knowing the mechanical way in which such work is carried out by native officials in India, I do think that any stipulation as to locality is of the smallest va Whatever was stated to the contrary, the first parcel of seed wo in all probability, come from a plantation reeking with disease. present request is the more unnecessary as, according to a co planter in Nyassaland who is well acquainted with coffee cultiva in Ceylon, a local African tree, *Albizza fastigiata*, is admirably ad ed for a shade tree for coffee. If this is not sufficient, the rain t or *Pithecolobium saman*, might be tried. The seed can be obtai in abundance from Jamaica, and this would be perfectly safe."

The coffee market.

Since our last issue, says *P.M. Review* of 1st instant, no pu sales have been held, and, in consequence, very li business has been done. The stocks are, indeed, of suc limited nature, consisting almost exclusively of comm and undesirable parcels, that there is no inducement buyers to increase their holdings. With the arrival of new crops there will no doubt be an improvement in demand, as the stocks in the country are generally c sidered to be much reduced, and some advance in values therefore, looked for. In the terminal market a moder business has been done, and prices first rose on the vari reports received from Brazil stating that the crop has b damaged by drought, but have since fallen upon a v decided increase in the daily receipts at Rio and San The market closes at an advance of about 6*d.* compared v a fortnight ago, after having been 1*s.* 6*d.* dearer.

LONDON COFFEE RETURNS.

—	HOME CONSUMPTION.		EXPORT.		STOCK.	
	1897	1896	1897	1896	1897	18
For the week ended Dec. 25, 1897.	Tons. 233	Tons. 171	Tons. 207	Tons. 92	Tons. 9,707	To 8,2
For the 51 weeks ended Dec. 25, 1897.	13,908	14,104	20,958	19,814	—	–

Agricultural research in Java.

The liberal and up-to-date po that governs agricultural resea in Java is well seen by the pres flourishing condition of what are modestly called Buitenzorg Botanical Gardens. The institution, for i nothing less, is divided into nine divisions :—

"Division I. Herbarium and Museum.
„ II. Botanical Laboratories.
„ III. Agricultural and experimental garden (181 ac with Laboratory for agricultural chemistry.
„ IV. Pharmacological Laboratory.
„ V. Botanic Garden (145 acres) and Mountain Gar (77 acres and 700 acres of virgin forest) Laboratory.
„ VI. Office, Library and Photographic Laboratory.
„ VII. Forest flora collections.
„ VIII. Laboratory for the study of Deli Tobacco.*
„ IX. Experimental station for coffee.*

"The second division has special laboratory accommodation 8 foreign visitors, the institution acting, since 1885, also as an in national botanical station that has already been visited by a g number of foreign naturalists.

* The divisions VIII. and IX. work at the expense of private mittees of persons interested in the culture of Deli tobacco and coffee.

The staff consists of 27 Europeans and over 200 nativ As the *Ceylon Observer* says, the above points ou

lesson indeed to both India and Ceylon. What have we got in Madras, for instance? One or two tiny little botanical gardens on the Nilgiris and one at Madras. We have no research stations, and practically experimental cultivation is totally neglected. We do not blame Government for this. Far from it. Planters have representatives enough to voice their needs; it is entirely their own fault if a much-worried Government waits to be asked before it gives.

Jadoo fibre. We have received one or two leaflets on the nitrates of this patent manure when used as substitute for leaf mould. What we have not yet seen, but would very much like to, would be the results in the open of jadoo-manuring compared with "artificials" and cattle. We reprint a "certificate" from Mr. J. J. Willis, Superintendent of Experiments at the Laboratory of Sir John Bennet Lawes, Bart., D.C.L., LL.D., Sc.D., F.R.S., Rothamsted, Herts:—

HECLA VILLA, CARLTON ROAD,
HARPENDEN,
8th December, 1897.

DEAR SIR,

I have made a partial analysis of the sample you sent me, and the results show that the fibre is richer in organic matter and in nitrogen than the famous leaf moulds of Rambouillet and Mauripas, France. But while it does not contain so much organic matter or nitrogen as the Ghent heath mould, so largely used for growing Azaleas for market, yet it is richer in mineral constituents.

The data show pretty clearly that the reason of the great value of Jadoo Fibre rests in the fact that the fermentation of the organic matter renders the substance just sufficiently soluble to be readily acted upon by the mineral constituents—Phosphoric Acid, Lime, and Potash—naturally present, and assisted by that incorporated, so that the nitrification of the material goes on gradually, yielding up to the growing plant just enough nitrogen, but no more than it requires day by day, therefore minimizing the loss of nitrogenous plant food, and ensuring a lasting effect in the material employed.

I beg to remain,
Yours faithfully,
J. J. WILLIS.

It would have been interesting to have the analysis published, and not only compared with leaf mould of different qualities. However, we doubt not that Jadoo is an excellent fertilizer enough, but until its present absurd price is reduced, can see no future for it in this country. A factory in India would lower the cost by nearly half, and it would pay even then handsomely.

Banana figs and flour. Commenting on recent articles on the subject in this paper, the *Produce World* makes the following remarks:—

"Bananas and banana flour, as articles of export to London, are evidently attracting increased attention. A planter located at Saklaspur, in Mysore, has recently been asking the Editor of *Planting Opinion* whether there is any known instance of plantains having been profitably shipped in bulk to England, and also for instructions as to the best methods of preparing 'plantain or banana meal.' As to the shipping of bananas in bulk, unless sent on by the fast mail steamers, and then in cool chambers, we do not see much chance, as yet, of a profitable trade, especially in view of the large number of Jamaican bananas now on the markets. By fast steamers, however, India is practically no further from London than Jamaica, and if planters could induce the steamship companies to provide suitable storage, it ought to be possible to place bananas on the London market in good condition. Have the planters, through their associations, no means of bringing pressure to bear upon the companies to provide suitable means of carrying all kinds of fruits, both from India and Queensland?

"Banana figs are another form in which this fruit may be placed on British and Continental markets. When ripe, the fruit is gathered, thoroughly dried, and then pressed into boxes, as with the ordinary fig. Consignments which have hitherto reached England have often been packed into too large boxes; the most suitable size is the one used for ordinary figs. Care, however, should be exercised that only boxes of some white and flavourless wood should be used. Prepared and packed thus, a market could be found for banana figs.

"Bananas and plantains, however, must not be regarded as identical, for though apparently of the same family they have considerable points of difference. Flour made from plantains does not find favour in London, but banana flour is quietly effecting a footing. It is regarded as particularly good for food in cases of typhoid. As to the manner of its preparation, we would refer our readers to an article which appeared in these columns last October. With all respect to *Planting Opinion*, however, we would advise against packing the meal in tin-lined cases or air-tight canisters, as some amount of sweating invariably takes place during the voyage to England and mustiness results. The best way of shipping is to put the meal into thick sacks or barrels, after thoroughly drying. At present, Messrs. John Haddon and Co., Salisbury Square, are working hard to make this product better known and appreciated, both in England and on the Continent."

The difference between plantains and bananas is purely one of taste, of degree and not of kind, but here in India bananas and plantains both go by the same name, *i.e.*, plantains. It is obvious of course that in making banana figs, only the very best quality of fruit should be used. Banana flour is made from green fruit and figs from ripe fruit.

Planting diaries. We wonder how many of our readers attempt to keep a succinct detailed history of the working of the estates they own or manage. We do not mean of course merely the age of the different fields, or the records of crop or distribution of labour of the whole estate. We mean more than this by far. Except by the rough and ready methods of estimating by the eye, preserved in the oft so treacherous memory, there are usually no means of comparing the results of different styles of treatment. This is greatly to be regretted, as rough and inaccurate empiricism is the reverse of practical, and tends to progress of a sort that can scarcely be distinguished from stagnation. We advocate nothing complicated or theoretical. Simply, a detailed and careful comparative record of work and results. Every estate is divided for convenience in working into a certain number of fields. Some are usually treated in one manner, and some in another. But no attempt is made in noting down their respective differences in treatment and result. The consequence is that it is absolutely impossible for the great majority of planters to be able to prove, in a logical manner,

COFFEE SHADE TREE.

Sun-dried Erythrina Lithosperma loppings, &c., contain per ton:—

61·50	lbs.	Nitrogen.
57·38	„	Potash.
14·92	„	Lime.
13·68	„	Phosphoric Acid.

Seed cured under Messrs. Sutton and Sons' advice.

Orders should be booked early for the coming crop of seed from the parent trees of above analysis at Rs.6 per pound containing about 2,000 seeds. *Germination guaranteed.*

Only thornless variety extant, and is not procurable anywhere save from the

MANAGER, ARIENKOW ESTATE,
Shencottah.

the superiority of any given treatment over another. This is, indeed, far from his thoughts. What, has he been a planter for the last fifteen or twenty years or more, and can't he prove to anyone's satisfaction that his favorite methods are the best? Do we mean to say that we won't accept his word? In reply, we merely point to a neighbour, of as great experience as his and as successful. His views on the subjects under discussion happen to be diametrically opposite. It is a little curious, isn't it? If our first friend is candid, he will admit, with a great deal of pressing, that after all his conclusions only hold good for his own estate, and that the exposure, soil, or something else must be different in his neighbour's tote. Press him still further, and point to fields in both gardens identical in all respects, and he will say: "Well, I do my best. No man can do more." As a matter of fact he doesn't do his best, *i.e.*, the best of which he is capable. He does the best according to his lights, but his lights may not be of the best.

What he ought to be able to say is somewhat after this style. These two fields are about the same aspect and soil. I have treated one in a certain fashion for the last ten years or so. My methods with the other differed in so and so. The results in crop compared with each other are so and so. Here are the records.

Ah, those records! How neglected they are, and yet how valuable. The lessons they would teach would be irresistible, no guesswork needing to be backed up by profuse talk simply reiterating the arguer's impressions. Some few have kept them religiously for a number of years, and these are, without exception, the most successful estates we know of in the district. Toes are bound to get trodden on here and there, but we mean to keep on hammering at this subject for some weeks yet, so we will apologise in advance.

LETTERS TO THE EDITOR.

MANGALORE TILES: COST OF.

SIR,—Can any of your readers work out the comparative cost per 100 square feet of "Mangalore" and the usual country tiles, reckoning in the amount of timber required for each?

With country tiles @ Rs. 5 per thousand (using 2,000 per 100 square feet), and reckoning cost of rafters, reepers, mats, &c., the cost per square (*i.e.*, 100 square feet) runs about Rs.25 to Rs.30, according to quality of timber, reepers, &c.

What distance apart should rafters be placed for "Mangalore" tiles, and what thickness ought the purlins to be fixed?

For country tiles a half-rafter ($2\frac{1}{2}'' \times 2\frac{1}{2}''$) is used every six inches. Then reepers (bamboo Rs. 6,100; gum Rs. 30 per 100) 2 inches apart. Then mats (about 9 per square) and, lastly, tiles.

As far as I can make out, country tiles are a trifle more expensive than "Mangalore" tiles and not half so nice.

TILE.

"SOIL RENOVATION."

SIR,—In the article on Soil Renovation in *Planting Opinion* of the 8th instant, there is an important error which, as it is not clear from the context, I should be obliged if you would allow me to point out in your next issue.

It appears as follows:—"We have the surface soil converted into humus containing one-half times as much nitrogen as cattle manure."

For one-half please read *one and a half*.

The quantity of nitrogen in cattle manure I reckoned on the basis of Professor Wolff's well-known analyses of farm-yard manure, and calculating on that basis, the worm-castings un*E. lithosperma* trees will be found one and-a-half times as r as cattle manure.

ARIENKOW, SHENCOTTAH, *14th January, 1898.* B. NELSON

GENERAL ARTICLES.

THE NEW TEA-PLUCKING MACHINE.

INVENTORS PLEASE NOTE!

A READER has been attempting to explain to us his ide on what he says is bound to be the tea-plucker of t future. Being no mechanic himself, he gives his ide free to the inventor who may happen to read this par graph. He starts by endorsing the condemnation of the patent pluckers in the market, which are based on entirely wrong principle, *i.e.*, shearing the bushes inste of plucking the flush separately. His idea is to imita the hand in a way a little difficult to describe without profuse use of cuts. However, we shall make an attemp Imagine a hollow tube, some six inches in length, a about half inch diameter. At one end of the tube is knob, which acts on a strong spring. On the knob bei pressed by the finger, a sort of forceps made of wire shoots o a couple of inches and closes on the stalk of the flush in t same manner as the finger and thumb do. On the spri being released, the forceps springs back, and in doing executes two movements. One is to break off the flu by a sudden bending to one side, and the other is to thro the picked flush into a small open basket fixed on the tu by a second reverse movement. Having accomplish this difficult and seemingly complicated feat, it retires the tube. There are six or more of these tubes fixed in row together, and the machine is manipulated with bo hands. One hand holds and points the plucker, a works on the knobs.

To the above we would add a few remarks of our ow The action of the forceps emerging from the tube, openi to seize the leaf and then closing to break it off, a finally retiring is exactly the same as that of the "Eagle automatic pencil. So there is no impossibility to perfor so far. It is perfectly feasible to pluck the leaf in th manner. It is more difficult to devise the throwing of t leaf into the basket. Perhaps this is not really necessar though of course more perfect. The forceps might sta permanently out of the tube and retain its flush until the six forceps were provided. Then a slight simultaneo pressure on all the knobs would make them to release the burden in the picker's cloth.

A simpler plucker still might be devised, or rather pair of them. They would consist of a single hollow tu with a single pair of forceps, which would simply break the flush and deposit it automatically in a receiving wi basket beneath attached to the plucker.

Talking of patent pluckers, the Indian Tea Associatio or the Ceylon Planters' Association, or both combine might well offer a substantial prize, say, of five thousa rupees, for a really satisfactory patent plucker. If one the conditions were that the plucker should pick double t usual kanak, the resulting saving to the community would immense. Allowing that leaf can be picked at the l

rate of one pie per pound, the saving per pound of tea would be two pies. The total production of British-grown tea may be put at 250 million pounds. This, at two pies per pound, would mean a saving of 2,60,000 rupees. Yet if only half the crop could be picked by these patent pluckers, over a lakh of rupees would be saved, allowing the balance for the cost of the machines. As a matter of fact, the average cost of plucking leaf is about double the amount we have mentioned.

The fact is that it is almost impossible for the planting community to regard itself as a trading corporation. It will not venture to lay out a few rupees in offering such rewards as suggested because of the inability of each unit of the community to regard itself as a unit, and nothing more. Five thousand rupees seem a lot to pay for an invention, thinks the unit. But *he* is not asked to pay all that himself. His share will be only a rupee or two. Not that he sees it however.

HOW WATER ACTS IN PLANTS.

The most interesting facts of science are often passed over with carelessness, merely because they are supposed to be well-known commonplaces. It is thus with the function of water in the life of plants. Knowing that plants need water more even than human beings, most think there is nothing more to know.

Nothing more to know! If we could trace the complete history of the functions of water in plant life, we should have explained perhaps 99 per cent. of all that is now so obscure. Plants are almost all water. Some, like cabbages, onions, lettuce, contain up to 98 per cent. of water; green clover contains 86 per cent., while even dried straw or cornstalks contain 10 to 15 per cent. of water.

It is very clear that water must be taken up in large quantities by the plant. But how is it taken up, by its roots or its leaves? A certain proportion of plants, mostly of a low order, absorb water both ways. A large section only make use of their roots. How does the water travel up the plant; how can it ascend from the lowly roots of a giant of the forest to the topmost leaf on its summit? What force is used to bring this about?

It was at first held that capillary attraction was sufficient, but certain curious experiments disproved this theory. Capillary attraction is, by the way, nothing more than is daily shown in the action of ink on blotting paper. To revert to the experiments. The cut stem of a vine was fitted into a tube containing mercury. The force of the sap movement raised the mercury 32½ inches, enough to raise water 36 feet high. The pressure of the atmosphere only raising mercury 30 inches, the force of the sap upwards was considerably more than the atmospheric pressure.

To dwell for a moment on this flow of sap. It is often found useful to man. In Java certain plants (*cissus*) are used as fresh-water springs, and in many parts of India and South America similar plants are found. The American aloe (*Agave americana*) yields a sap which, when fermented, forms the well-known American intoxicating drink of *pulque*. The flow of sap being continuous for some months, a single plant will give over ten gallons of this liquid.

But to come back to the question of the motion of the sap, and how it takes place. We all know that plants transpire a great deal. That is, that by means of the pores on their leaves they pass out into the air a large quantity of moisture. We shall dwell on this process a little further on. The drier and hotter the air, the quicker does the transpiration go on. Well, the water brought up into the plants by the roots is not pure water by any means. It holds a great deal of chemical elements all melted up in it. The plant is formed of tiny cells, each adjoining but distinct from the others, and the separating walls are of the finest tissue-like membrane imaginable. Well, the cells near the transpiration points, that is to say the leaves, are continually getting their water taken away by transpiration. The sap they contain is apt to get, we may say, like a very thick soup. The cells below and nearer to the roots contain thinner soup, and by a certain chemical law, liquids of different density (or thickness we may say) separated only by membranes have a power to mix themselves up so as to render the liquids on both sides of the membrane of one quality. So that there is a continual exchange of liquids between the cells of the plant, resulting in a strong upward flow of sap from the roots. A very simple and well-known experiment can be used to illustrate the argument. Take a basin of salt water and a bladder of pure water. Lay the bladder in the basin. After a time, take out the bladder and taste its contents; they will be found to be salt, but not so salt as the water of the basin formerly was. In other words, the mixing of the liquids will take place very nearly as easily as if there was no membrane to separate them.

This insignificant-looking law is the reason of the upward rush of sap from the roots, aided of course by transpiration.

Let us return to transpiration. First, to prove that it takes place. Place a growing plant under a glass cover. In a few minutes dew will be deposited on the inside of the glass. This can be hastened by dashing the outside of the glass with cold water. Having proved that plants do transpire, let us see how they do it. They transpire by means of minute transpiration pores or *stomata*, which exist both on the under and upper surface of the leaf. Their number varies considerably on the leaves of different plants. Succulent plants have remarkably few. One square millimetre of a leaf of a cabbage has been calculated to contain 400 stomata on the upper surface of the leaf and 700 on the under side. A square inch of a lilac leaf may contain 120,000, a linden leaf 1,000,000, and the under side of an oak leaf over 2,000,000. Their size varies. They are largest in orchids, lilies, and grasses, and smallest in olives and fig trees. As the leaf surface of most plants is considerable, the amount of water entering the air in this way, and consequently having to be replaced by being absorbed by the plant's roots must be enormous. According to a calculation by an American botanist (the late Asa Gray), a certain elm tree produced every year 200,000 square feet of surface (about five acres), whereas the actual space of ground it covered was only about a fiftieth part of this in extent. It has further been calculated that an oak tree, within a period of six months, transpired during the day

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Correspondence and matter for publication to be sent to Editor, this paper, Coonoor.

time eight and a half times as much water as fell in the form of rain on an area equal in circumference to the tree top. Calculations have been made as to the amount of water given off by different plants. Thus an old experimenter found that a sunflower, with a surface area of foliage amounting to about 40 square feet, gave off twenty-two ounces of water in twenty-four hours. A maize plant again was observed to transpire in about two and a half months' time about thirty-six times its weight of water; while an acre of grass land transpired more than thirty hogsheads in a day. Perhaps the best conception of the amount of water transpired by different plants may be afforded by the statement that in a series of experiments carried out on the common agricultural plants, it was found that for every 1 lb. of dry tissue formed, a transpiration of from 233 to 912 lb. of water took place. The plant which transpired the least quantity was maize—viz., 233 lb.; while that transpiring the most was rape, 912 lb. Mustard, barley, and oats all transpire large quantities. About 350 lb. may be taken as an average for the common agricultural plants. The dangers of allowing growth of weeds in dry weather is thus easily understood.

FERTILIZATION OF THE COFFEE FLOWER.

[BY "J. C."]

A GOOD many planters who will recognise the above initials know that I am keen on the crossing of coffee. Wishing them and others to be equally keen in a work which may eventually lead to the advantage of the whole planting community, I venture to offer a few hints as to how the details of the crossing may be put in motion. The process of fertilization, if confined to individuals of the same species, will only result in producing "varieties" of the individuals concerned. But when it is extended to different species of the same genus, then an intermediate class of plants called "hybrids" are produced. As this may not be quite clear to all, I shall give a practical illustration. When two bushes of *C. arabica* are growing near to each other and flowering simultaneously, they will be observed to attract many insects of the winged class. It is a marvel where these insects come from in such numbers and at such short notice. But there they are the whole day, hurrying to and fro from one bush to the other until, perhaps, every newly-opened flower has been visited. Now, although these insects have been most industrious in their own interests, collecting food and building material, the chances are that they have unconsciously rendered a signal service to the coffee also by carrying pollen from the flowers of one bush to that of the other. If they have done this inadvertently or otherwise, the insects have effected cross-fertilization to the extent of producing varieties, or new forms of the two bushes concerned. By excluding the services of the insects altogether, the same results, and even more effectual ones, can be secured by delicate manual operations. But of this further on. The difference between the fertilizing work of insects and that of man consists in its being promiscuous and haphazard in the one case and systematic in the other.

Now if individuals of two distinct species, such as *C. arabica* and *C. liberica*, were to blossom together in manner described above, exactly the same activity of in life would be observed, with, perhaps, similar results, that in this case the progeny would be more than a "varie it would be a "hybrid." Planters know that year a year their nurseries are stocked with seedlings raised f local seed of which a small percentage appear to be varieties, or at least different from their fellows. T know also that nature is herself responsible for variation. If the life history of a number of seedlings carefully traced, it would be found that while a few diff in the form, size, and texture of the leaf, others in the and quality of the fruit or habit of growth, the major would be nearly identical with the prevailing variety on estate. This is all right where the prevailing strain is g But where the product for which a plant is cultiva shows signs of exhaustion, or has become deficient in qua or quantity, the strain is said to have "run down," an all such cases too much individualism in reproductio undesirable. It is in all probability to prevent this runn down of strain or breed that nature insists on c fertilization.

Coffea arabica, or Arabian coffee, of which there are sev well-defined local varieties known by such names as "Chic Coorg, and "Nalknad," has been almost exclusively cult ted in this country from the time the industry was star and it is only within recent years that one or two varieties and species have been introduced and cultiva on the estates. This fact will explain the absence hybrids over such an extensive area, there being material to make hybrids from. Yet, within the past years, some hybrids have made their appearance, sho following the introduction of Liberian coffee, a distin new species. And, barring the fact that two distinct spe have been placed in juxtaposition to each other, hybrids are the work of nature. But in the instan referred to, man must get the credit of having materi helped nature by providing a new species for the latter work upon.

If he would, therefore, do more in this direction, chances are that worn-out strains of coffee would soon replaced by better kinds.

This leads me on to the suggestion that approved variet and new species of coffee should be freely introduced fr other countries. The field for experiment would then much widened, as planters would have sufficient mate to work upon.

The cultivated forms of coffee in different parts of world are already so far advanced of the indigenous wild bush that it would probably be mere waste of effort bring the latter into experiments, the object of which is secure further improvement in productiveness and quali Collections of species and varieties should, therefore, be c fined, in the first instance at least, to well-known j already in cultivation. These I shall leave the plan being the best judge, to select for himself. Now suppos that some enterprising planter has already secured suc collection of coffee-bearing plants, how is he to dispose them to the best advantage? This is a question that I sh endeavour to answer in my next.

MILLIE & REDMOND, late P. THOMPSON & CO., *Ootacamund, Engineers and Contractors.*

THE "GREAT" RUSSIAN TEA PLANTATIONS.

THE following is an excerpt from a very interesting letter written by a Ceylon Planter, Mr. R. V. Webster, to the Island press.

The most noticeable fact is that, until locally-grown tea is taxed in the same way as tobacco, oil and other productions, it will pay the grower handsomely. Mr. Webster thinks it highly unlikely that the tea will remain untaxed for long :—

RUSSIAN PLANTATIONS.

Calling on the manager of Mr. Popoff's retail establishment, I was astounded to learn that even he was not admitted to the plantation. He also informed me that the Minister of Finance at St. Petersburg, after driving to the plantation, was not allowed to enter it. The Svostchiks demanded double fare to drive to the plantation, as the snow in parts was deep, and they require four horses, so I decided to wait till the following day, when I took train to Chakva and visited the first Russian tea plantation, which I now discovered was started by Colonel Solovitzoff in 1885. During my stay at the Caucasus I visited the Solovitzoff plantation, which has 100 acres of tea, Popoff's plantation with 250 acres, and the Imperial Domains plantation with 150 acres. Colonel Solovitzoff, a retired Officer of the Engineers, was the pioneer tea planter in Russia. In 1885 he planted 36 trees that were imported from China; with the seed gathered from these 36 trees, 250 out of the 500 acres in the Caucasus have been planted. The much prized seed bearers stand three feet high, and are to be seen in front of the factory; that they will each year bear seed in abundance they may be assured, as they are a jât known only too well at great cost to many in India and Ceylon. I went through a clearing in its seventh year and found it not as far advanced as tea in Ceylon or India in its third year. This is partly due to the short summer, bad seed, and strong winds from the sea to which all the plantations are exposed.

MR. POPOFF'S PLANTATION.

Mr. Popoff has his plantation closely guarded. On arrival at the gate three Circassians, each armed with two swords, three pistols, and a rifle, presented themselves and demanded my permit. Handing my card of admission through the bars, two entered a hut to study the document, while a third kept guard. After some fifteen minutes, when they had satisfied their curiosity, one ascended the hill to the Superintendent's bungalow; another fifteen minutes in the sleet, and the messenger returned with orders to open the gate, and for the first time a tea planter, and a British subject, entered the plantation which is kept such a profound secret. On ascending the hill I met the Superintendent, who showed me round the plantation, which has cost over 800,000 Rbls. (£82,000 sterling). It reminded me very much of the hill paddy-fields in Ceylon, as all the plantation is laid out in terraces five feet broad, the cost of which must have been very great, as the land in parts is steep. I saw tea trees from India, Ceylon, Java, and China, all of which looked well, notwithstanding the two feet of snow which lay on the ground, and the severe weather which had set in unusually early this year. Only a small area is planted with seed from India and Ceylon, and this has been condemned by Mr. Popoff. Perhaps his Chinese tea-maker thinks the leaves too long!

MR. CHINAMAN.

The Superintendent has no experience in tea, but informed me he is learning the work from their head Chinaman. This gentleman was brought from China and draws the nice sum of £50 per month. Along with him are ten other Chinese who, from all accounts, draw salaries that will enable them in a few years to return to their country and live on the fat of the land. Last year they imported 6,000 lb. of tea seed from China, out of which Mr. Popoff raised 49 plants. Mr. Chinaman may be counting on repeat orders till they raise the required number of plants!!

THE CAUCASUS.

In Odessa I was told that a large area suitable for tea was to be found South East of the Caucasus near the Caspian sea; but from what I have seen, and on what I believe to be reliable information, I report as follows :—South-east of Caucasus, south of Baku, and near the Caspian sea there is a mild climate and fair soil, but as there is little or no rain, and all the year round is subject to violent wind storms, it would be impossible to grow tea. On the East coast of the Caspian sea there is poor soil, no rain, and in summer violent hot wind storms that dry up all before them. On the Caucasus and to the north of Baku the winter has proved too severe. Last year out of the 5,000 plants put out near Tiflis not one survived to see the spring. South-west of the Caucasus, on the coast between Soukhoum and Batoum, there are about a hundred thousand acres where it would be possible to grow tea, but at no part is it more than three miles from the sea, and in many parts the mountains are very steep close to the sea. The soil is good and rainfall plentiful, and in winter there is snow and sometimes twelve degrees of frost. In summer they often have strong winds with hail which does much damage to the tea. From the 1st of April to the end of September the bushes will sprout, but after July the flush is checked by winds and hail. Tea of the right jât planted in the shade might in the eighth year give 200 pounds per acre; with labour at 1s. 6d. per day, I fail to see where the profit would come in for the grower even with 1s. 10d. per pound duty in his favour.

THE GOVERNMENT PLANTATION.

The latest addition to the Government plantation is 50 acres, planted with seed: the trees from which will never give 100 lb. of tea per acre. The cost of opening the land, seed, planting, and upkeep for first three years was £5,750 sterling, which is equal to £115 per acre. To this must be added the cost of land £10 per acre and Superintendent's salary! The Superintendent's estimate for this clearing is as follows :—5th year 60 pounds of tea per acre; 6th year 90 pounds per acre; 7th year 130 lb.; 8th year 200 lb.; and 9th year 250 lb., for which he hopes to get 3 Rbls. (6s. 6d.) per lb. It is possible that he may obtain his estimate for the first two years, but I am very certain he will be sadly disappointed in his returns for the following years, as also the price he will realise. At 3 Rbls. per pound, the Russian tea-grower would have a nice profit, but when he comes to realise 1 Rble. 8 Kp. (2s. 4d.) per lb., he will find the balance on the other side.

So India and Ceylon may count on Russia as a good field for their increasing supply.

P.S.— Since writing the above, I have received a valuation from Messrs. Gow, Wilson & Stanton, of the tea Mr. Popoff gave me while in Moscow from his plantation in the Caucasus, "6d. per lb." This confirms the valuation of my friend in Odessa.

DISTRICT ASSOCIATION.

SHEVAROY.

PROCEEDINGS of the monthly committee meeting of the Shevaroy Planters' Association, held in the Victoria Rooms, Yercaud, on Monday, the 10th January 1898, at 10 A.M. *Present* :—Mr. J. C. Large, Mr. H. W. Leeming, Rev. J. M. Kempf, Mr. C. Rahm, Mr. C. G. Lechler (*Chairman*), Mr. R. Gompertz (*Honorary Secretary*).

1. Mr. Large's letter *re* small change, which stood over from last meeting, was again read, and the Honorary Secretary informed the meeting that, in reply to his reminder, the Collector had stated that the matter was still pending. *Resolved* that the Honorary Secretary be requested to address the Collector again, and to suggest that, until the matter is settled, he should be pleased to arrange to send up a larger supply, both of rupees and small change, as there has been greater difficulty since receipt of his letter, No. $\frac{887}{B \& G}$, dated 5th July 1897, than there has ever been before in cashing notes at the Treasury, and particularly in obtaining small change.

2. *Read* letter from Mr. C. G. Lechler, suggesting that two vaccinators be sent up to these hills. Resolved that Mr. Lechler's letter be forwarded, through the Collector, to the District Surgeon, with a request that he should be pleased to comply with the suggestion made.

3. *Read* letter from Mr. Leeming, complaining that his name board had been torn down some time in November, and that, though he had written to the Deputy Tahsildar, who had issued orders about it, nobody had been to him to make enquiries. *Resolved* that the letter be forwarded to the District Superintendent of Police.

4. *Read* letter from Mr. Leeming complaining of non-execution of certain warrants taken out by him. *Resolved* that Mr. Leeming be requested to furnish all the details he can for Honorary Secretary to forward to the District Superintendent of Police.

C. G. LECHLER (*Chairman*).
ROBERT GOMPERTZ (*Hon. Secy.*)

PROCEEDINGS of quarterly general meeting of the Shevaroy Planters' Association, held in the Victoria Rooms, Yercaud, on Monday, the 10th January 1898, at 2 P.M. *Present*:—Mr. E. Dickins, Mr. R. A. Gilby, Rev. J. M. Kempf, Mr. J. C. Large, Mr. H. W. Leeming, Mr. T. B. Nicholson, Mr. S. M. Pritchard, Mr. C. Rahm, Junior, Mr. W. Rahm, Mr. C. D. Ryle, Mr. B. Short, Mr. F. Short, Mr. C. G. Lechler (*Chairman*), Mr. R. Gompertz (*Honorary Secretary*).

1. Notice convening the meeting was taken as read.

2. *Read* and confirmed Proceedings of Committee Meetings held on the 1st November, 6th December, and on this day.

3. *Read* Proceedings of the Court of the District Magistrate of Salem, held on the 7th December 1897, *re* Mr. Rickett's complaint against the Tahsildar. *Recorded with satisfaction.*

4. *Read* Circular letter from the Secretary of the U. P. A. S. I. *re* employment of an Agricultural Chemist, together with an application for the post from a Mr. Drysdale Turner, and the list showing the amount which members of this Association are willing to subscribe, and the number of analyses they are likely to require during the year. *Resolved* that, in the opinion of this meeting, it would not be desirable to join the U. P. A. S. I. in engaging an Agricultural Chemist for the whole of Southern India, but that the Honorary Secretary be requested to write to the Honorary Secretary of the Nilgiri Planters' Association, enquiring whether they would allow us to join them in procuring an Agricultural Chemist for the two districts; and, if so, on what terms.

5. *Read* letter from Mr. Leeming stating that the special Constables, appointed for the prevention of coffee stealing, had not visited Scotforth Estate for about a month. Several of those present, *viz.*, Mr. Kempf, Mr. Large, Mr. W. Rahm, Mr. E. Dickins and Mr. T. B. Nicholson, made similar complaints, about which they promised to write to the Honorary Secretary, who will then address the District Superintendent of Police on the subject.

6. *Read* correspondence about lady-birds. *Resolved* that the Honorary Secretary be requested to endeavour to collect the amounts promised for transmission to the Secretary, U. P. A. S. I.

C. G. LECHLER (*Chairman*).
ROBERT GOMPERTZ (*Hon. Secy.*)

GORTON SHIRTING.

FINE Gorton Shirting, F. No. 4, in pieces of about 80 yards, at 4½ annas a yard.

A. D'ROZARIO AND CO., LD.,
W. MADRAS.

MARKET REPORT.

COFFEE.

Messrs. R. J. Rouse & Co.'s Weekly Coffee Report (January 7, 1898) says:—Public sales were resumed last Tuesday after a fortnight's interval, and the moderate supplies brought forward met a fair demand at unchanged values.

About 400 bags new crop East India attracted good competition and sold at steady prices, whilst one or two favourite Home Trade marks realised full rates.

Columbian formed the bulk of the Central American offered and was mostly disposed of at rather irregular prices.

Futures show a fall of ⅛ on the week in consequence of rather larger receipts and a decline in the Brazilian exchange: at the close however the market is steady.

Messrs. Wm. Jas. and Hy. Thompson's Report of the Colonial Markets for the Week ending January 5th, 1898, says:—Bank rate 3%. Bombay Exchange closes at 1s. $3\frac{1}{16}$d. Brazil Exchange $6\frac{3}{32}$d. Rupee paper $3\frac{1}{2}$ % $62\frac{1}{2}$. Silver $26\frac{3}{16}$d. per oz.

Public sales were resumed yesterday, the moderate supplies catalogued selling well for all good and fine qualities, whilst ordinary and common continue about steady but difficult of sale. New crop East India and Costa Rica have again realized full values. Brazil markets are very quiet.

Daily receipts averaged 10,800 bags in Rio and 14,500 bags in Santos.

Futures close flat at about 1s. to 1s. 3d. per cwt. decline, viz.:—Good average Santos in Havre, March delivery, fcs. 37.75, in Hamburg pf. 31½, and No. 7 low ordinary Rio in New York $5.80.

To-day's London official quotations are:—

	Jan.	March	May	July	Sept.	Dec., '9
SANTOS ...	31/6	32/-	32/3	32/9	33/-	33/3

We quote:—

Ceylon, mid. to good mid.	95/@100/	Costa Rica, mid. to fine...	77/@1
Do. small to low mid.	75/ ,, 93/	Do. ord. to low middling.	53/ ,,
East India, mid. to good mid ..	80/ ,, 90/	Jamaica, good to fine ord.	47/ ,,
Do. small to low mid.	65/ ,, 79/	Do. greenish to fine colory...	70/ ,, 1
Guatemala, mid. to fine...	75/ ,, 100/	African ...	28/ ,,
Do. good ord. to low mid...	55/ ,, 73/	Columbian, ordinary ...	38/ ,,
Salvador, good ord. foxy greenish...	48/ ,, 49/	Do. good ord. to low mid...	45/ ,,
		Do. mid. to fine...	71/ ,,

Receipts in Brazil to 5th Jany. compare as follows with previous years:

	1897-98. Bags.	1896-97. Bags.	1895-96. Bags.
RIO	2,759,000	2,227,000	1,650,000
SANTOS	4,477,000	3,639,000	2,417,000
	7,236,000	5,866,000	4,067,000

Auctions:—

314 bags East India, Neilgherry, new crop	..	@ 65/	@ 10
94 bags East India, common pale pickings	...	,, 32/	,, —
2 bags Ceylon in parchment	... ...	,, 61/6	,, —
594 bags Costa Rica, part new crop, part London cleaned, chiefly sold	... ...	,, 50/6	,, 10
356 bags Nicaragua	... ...	,, 43/	,, 4
21 bags Guatemala	... ...	,, 32/	,, —
348 bags Vera Paz chiefly sold	... ...	,, 45/6	,, 7
3,801 bags Columbian, part London cleaned, chiefly sold	...	,, 48/	,, 8
536 bags Guayaquil	... .	,, 40/	,, 4
100 bags Peruvian, part sold	... ...	,, 36/	,, 4
52 bags South Sea Islands	... ...	,, 35/	,, 5
570 bags Bahia bought in			
67 bags Ceara bought in.			
87 barrels Jamaica	... ...	,, 45/	,, 8
59 packages Mocha bought in.			

On Quay Terms:—

700 bags Washed Santos bought in.

Prices realized at auction for the principal Marks of East India:—

NEILGHERRY.

	A	B	C	PB	
Adderley	105/-	85/6	65/6	109/- bid	5
Kotergherry DC	99/-	80/6	65/-	100/6	5
Kotergherry FC	105/-	86/-	66/-	110/-	5
EGN ◊ Glenburn Nilgiris	93/6	76/6	64/6	91/- bid	5

Landed last week ...377 *tons. Deliveries* ...292 *tons. Stock* ... 9,792 *to*
Do. last year ...430 ,, ,, ...200 ,, ,, ... 8,515

TEA.

Messrs. Gow, Wilson and Stanton's Indian, Ceylon, and Java Tea Repo dated January 7th, 1898, says:—

QUANTITY BROUGHT TO AUCTION IN LONDON

FROM 1ST JUNE TO DATE.

	Indian.	Ceylon.	Java.
1897-1898...	958,917 packages.	709,432 packages.	25,751 packag
1896-1897...	982,457 ,,	672,656 ,,	23,865 ,,

40,097 *pkgs.* INDIAN
26,306 ,, CEYLON } Total 67,131 packages were offered in pub
728 ,, JAVA } auction this week.

Indian. The market opened on the 3rd inst. at prices fully up to th ruling before Christmas, demand being good for all grades. The offic wire gives exports to the U. K. for the second half of December 5,870,000 lbs., against 4,270,000 lbs., making the total from the commen ment of the season to the 31st Dec. 121,140,000 lbs., against 117,390,000 l for the same period last year.

Week's av. of Tea sold on Garden Account, 1898, 30,890 pkgs., av. 8·38d. 1897, 279,922 pkgs., av. 9d.

	1898.		1897.		1st June to date 1898.		1st June to date 1897.	
	Pkgs.	Price.	Pkgs.	Price.	Pkgs.	Price.	Pkgs.	Price.
Assam ...	14,771	9·34	16,592	10¼	336,748	10·16	330,154	10
Cachar & Sylhet...	8,018	7·08	7,846	6¾	181,741	7·05	170,619	7¼
Chittagong ...	—	—	172	6¾	4,367	1·17	2,283	7½
Chota Nagpore ...	97	5	148	4½	901	4·79	1,150	4¾
Darjeeling ...	2,675	10·09	1,153	1/0¼	51,036	11·21	46,291	1/0¼
Dooars ...	3,563	7·71	2,837	7¼	80,876	7·67	88,108	7½
Kangra, &c. ...	380	6·42	150	9¾	5,316	7·40	4,088	7
Neilgherry ...	53	8·51	260	6½	4,536	7·09	10,103	7
Terai ...	402	6·90	450	7¼	17,202	7·24	10,103	7
Travancore ...	931	6·80	314	6¼	20,775	6·64	17,373	7

Total sold on Garden Account 1st June to date 1898, 702,996 pkgs., av. 9d. 1897, 642,160 pkgs., av. 9 08d.

Comparative prices of Indian Tea in London :—

		1898.	1897.	1896.	1895.
DUST.	(Fair ordinary, dark liquor) ...	3¾d	4¼d	4¾d	4½d
FANNINGS.	(Red to brown, strong rough liquor) ...	4¼d	4½d	4¼d	6d
BROKEN TEA.	(Brownish to blackish, strong liquor) ...	6¼d	6¼d	6d	7½d
PEK. SOUG.	(Blackish greyish, useful liquor).	6½d	6½d	6½d	8¾d
PEKOE.	(Greyish to blackish, some tip, useful liquor) ...	7½d	7¾d	7¾d	9¼d
PEK. SOUG.	(Blackish greyish, inferior liquor).	5d	5d	5¼d	7d
PEKOE.	(Blackish greyish, some tip, inferior liquor) ...	5½d	5¾d	5¾d	7¾d

Ceylon. At the opening of the market on the 4th inst., closing rates of last year were maintained with an improved general demand. The Official Wire gives exports to the United Kingdom for December as lbs. 9,500,000 and estimates the quantity for the current month as 8½ to 9 millions. It also gives the total exports from 1st Jan. to 31st Dec., 1897, as lbs. 99,750,000, against lbs. 94,750,000 in 1896. Average for week 8·30d., against 8d. same period last year.

Ceylon Tea sold on Garden Account 1st January to date 1898, 24,700 pkgs., av. 8·30d. 1897, 24,802 pkgs., av. 8d.

Comparative prices of Ceylon Tea in London :—

		1898.	1897.	1896.	1895.
PEKOE SOUG.	(Ordinary leaf ; fair liquor) ...	6½d	6d	6½d	8d
PEKOE	(Ordinary leaf, little twist ; fair liquor) ...	7½d	7d	7¾d	9½d
PEKOE SOUG.	(Rather bold leaf ; indifferent liquor) ...	4¾d	4¾d	5¼d	7¼d
PEKOE	(Somewhat bold leaf ; indifferent liquor) ...	5¾d	5½d	6d	7¾d

Java. The small auction comprised some invoices of good quality, the Teas selling with good demand at steady prices. 127 packages from "W. W." garden averaged 8d.

MOVEMENTS of TEA in LONDON (in lbs.) during DEC., from TEA BROKERS' ASSOCIATION FIGURES.

	Imports.			Deliveries.		
	1897.	1896.	1895.	1897.	1896.	1895.
INDIAN	21,061,194	18,526,383	17,305,803	11,359,577	11,584,879	9,938,268
CEYLON	6,936,886	7,387,200	4,799,520	7,286,814	6,990,274	5,505,918
JAVA	234,710	131,320	83,230	234,290	168,140	228,900
CHINA, ETC.	2,762,225	2,792,143	4,103,249	2,596,676	3,183,628	3,108,994
TOTAL lbs. ...	30,995,015	28,837,046	26,291,802	21,477,357	21,926,921	18,782,080

FROM 1st JUNE TO 31st DECEMBER.

	Imports.			Deliveries.			Stock.		
	1897.	1896.	1895.	1897.	1896.	1895.	1897.	1896.	1895.
INDIAN	101,637,635	98,401,972	90,921,951	72,199,555	71,007,979	67,098,828	61,673,292	54,144,603	52,638,498
CEYLON	54,869,036	53,494,756	45,371,840	58,192,868	53,697,436	49,280,782	16,629,348	18,354,854	13,812,810
JAVA	2,040,710	2,020,270	2,149,140	2,195,200	2,559,690	2,327,101	597,730	448,280	759,640
CHINA, ETC.	25,485,233	29,724,367	33,957,537	19,292,396	23,816,147	25,225,061	19,196,176	25,547,815	28,443,364
TOTAL lbs. ...	184,032,614	183,641,365	172,400,468	151,880,019	151,081,252	143,931,681	98,096,546	98,495,552	95,654,312

Bank Rate 3 per cent. Exchange on London three months sight :—Calcutta 1/4⅛. Colombo 1/4⅛.

PUBLIC SALE OF SOUTH INDIAN TEA.

(AVERAGE FOR ALL INDIA 8·38*d.*) *January 7th.*

GARDEN.	Total.	Average.	Broken Org. Pek. or Flowery Pekoe.		Pekoe and Unassorted.		Broken Pekoe.		Pekoe Souchong.		Broken and Souchong.		Fannings, Dust, and Various.	
	Quantity	Price.	Quantity	Price.	Quantity	Price.	Quantity	Price.	Quantity	Price.	Quantity	Price.	Quantity	Price.
Neilgherry ...														
Kodanaad ...	52 p	8½	...	...	23	7½	30½c	9¾	...	...	...	...	...	...
Travancore ...	**931 p**	**6·80**												
Arnakal ...	180 p	7½	27 p	8	54 p	6¾	62 p	8¾	17 p	5¾	...	...	20¼c	5½
Carady Goody ...	73	6¾	30	6½	18	†5	25	8½	...	...	...	...	...	...
Fairfield ...	149 p	6¾	29 p	7¾	41	6½	33	8	29	5¾	11	5½	6	3¼
Isfield T Co ...	88	6¾	...	...	28	7	27	7¾	33	5½	...	...	...	...
Patanaveram ...	10	5½	...	...	9	†6	...	...	...	...	...	...	1	2
Penshurst ...	148	7¼	91	7½8¾	31	6	...	...	15	5½	...	...	11	5¼
Travancr T C BA ...	177	7¼	...	...	16	6½	48	8¾	17	5¾	4	5	92	4¾7¼
Vembanard ...	106	6¼	23	7¼	58	†4¾ †6	21	8	...	...	...	...	4	3¾

† = withdrawn.

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The Wynaad and the Planting Industry of Southern India, by FRANCIS FORD, Re. 1.

The Planting Directory of South India, Re. 1-8.

Tea Planting from Seed to Cup in Tamil, with English Translation. Re. 1.

Sketch History of the Planting History of Wynaad, by the late ADOLPHUS ARTHUR WRIGHT. Re. 1-8.

Science and Coffee, by the late MR. WM. PRINGLE, M.S.C.I., Re. 1-8

Report of Observations of Injurious Insects and common Crop Pests during the year 1883, with methods of Prevention and Remedy by Miss ELEANOR A. ORMEROD, F.R.Met.Soc., &c., Re. 1-8.

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Nutmeg and Clove, Rs. 10 per hundred.

Cacao, best Trinidad varieties, Rs. 1250 per dozen pods, equal to about 300 seeds.

Erythrina Lithosperma, new crop now ripening, Rs. 10 per lb.

Vanilla Cuttings, Rs. 10 per dozen.

Coca, small leaved kind for low elevations, Rs. 4 per 100; Rs. 20 per 1,000; large leaved kind for high elevations, Rs. 5 per 100; Rs. 30 per 1,000.

Giant Kew Pine Apple, Rs. 10 per dozen suckers; 5 dozens for Rs. 40.

Pepper, best variety, Rs. 10 for 1,000; new crop now ripening, 5,000 for Rs. 40.

Para Rubber. Orders being booked for the coming crop, available in August-September, quantity limited.

Sisal Hemp, Rs. 12 per dozen suckers; 5 dozens for Rs. 50.

Liberian offee. Orders being booked for January delivery, price according to quantity.

Cinnamon. Orders booked for May-June delivery, price according to quantity.

Ramie. Seeds Rs.5 per ounce; root cuttings, Rs.10 per 100, and Rs.60 per 1,000.

Fourcroya Gigantia, (Mauritius Hemp,) Rs.10 per 1,000 seedlings; large quantities on special terms.

Bowsting Hemp. Root cuttings, same price as Ramie; large quantities on special terms.

Ceara Rubber, fresh seeds all the year round, price according to quantity.

Large quantities of all the above supplied on special terms; all orders must accompany remittance by P. O. order.

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PLANTING OPINION.

A WEEKLY JOURNAL

WRITTEN BY PLANTERS FOR PLANTERS.

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ADVERTISEMENTS.—From the 1st October, 1897, the charge for line advertisements will be: 4 as. per line for the first, 3 as. for the second, and 2 as. for the third and succeeding insertions. Five-line advertisements from Subscribers will be inserted for three issues for one rupee; non-Subscribers will be charged two rupees.

DOMESTIC OCCURRENCE.—The fee for inserting a domestic occurrence will be *One Rupee* for each insertion, payable in advance.

N.B.—Remittances should be sent to the Manager, "Planting Opinion," Esplanade Row, Madras.

IMPORTANT NOTICE.

The Business Offices of this paper having now been removed to Madras, all remittances should be made payable to the Manager of *Planting Opinion*, 3, Esplanade Row, Madras, who will also attend to all advertisements, &c.

Letters to the Editor should be addressed to Coonoor, as usual.

SEASON REPORTS.

NOTICE.

TO OUR SEASON REPORTERS.

Please post your next reports to reach Madras on Friday, the 11th February, 1898.

Season Reports should be sent to the Printers, Messrs. ADDISON & Co., direct, and not to *Planting Opinion* Office.

Nilgiris.

COONOOR, *2nd February.—Weather.*—Two or three spells of slightly rainy weather lasting only a day or two each, so far, this year. Everything is very dry, in consequence of failure of North-East Monsoon. Frost severer now; cold in the early morning is intense. *Crops.*—Coffee still coming in slowly. Wood looks grand for next year. Tea being pruned. Grain still high. *Plant-diseases.*—None about, if one excepts the damage done by porcupines to tea. It is lucky indeed that coffee does not attract these fiends. *General Health.*—Indifferent, touches of liver among Europeans being the most noticeable. *Labour.*—Ample enough.

Coorg.

POLLI BETTA, *27th January.—Weather.*—Clear and chill with high east wind. Last night, about 10 P.M., cold high wind blew strongly from east as if bringing up a storm, but the star sky was perfectly clear. Eclipse seen in ideal weather: not a speck of cloud anywhere. *Crops.*—Stripping continuing. Felling a little short of estimates. *General Health.*—Some improvement, but fevers still very prevalent.

POLLI BETTA, *2nd February.—Weather.*—Fine and cool; wind only occasionally. *Crops.*—Stripping still going on in parts. Finished in others. In few cases above estimates. In most slightly under. *Public Health.*—Great improvement has taken place since last report, though there is still some fevers and bowel-complaints about.

NOTES ON ANIMAL MANURES.

IT is needless to say that animal manures differ very widely in their manurial value. This value, which is usually based on the percentage of nitrogen they contain, has a direct connection with the food they eat and the mode of life pursued. Thus, the dung from an animal that is being fattened for slaughter, contains a great deal more nitrogen than the dung of an animal in hard work, or giving suck to its young. The explanation is simple. A fattening animal needs comparatively little nitrogen to build up its fleshy and fatty tissues; hence a large proportion of the nitrogen in the food passes out undigested in the dung. A milch cow, on the other hand, requires a large quantity of nitrogenous food to enable the secretion of milk to take place. Hence a portion only of the food nitrogen is passed in the dung: the remainder is partly in the milk and partly stored up in the tissues to replace the natural waste. This natural waste is strongly marked in the case of draught animals, whose working energy depends of course altogether on the nitrogenous and carbonaceous fuel or food they consume. Every 100 lbs. of milk, by the way, contain $\frac{1}{4}$ lb. potash, $\frac{1}{5}$ lb. phosphoric acid, and $\frac{1}{2}$ lb. nitrogen.

As regards inorganic matter, so-called, like the various phosphates, potash, lime, sulphur, magnesia, etc., it may be said that the great bulk is passed out unaltered in the dung.

The proportion that dung has to the food consumed varies a great deal. With horses about 47% of the food is passed out as dung, calculating both on their dry weight. The amount of nutriment that still remains undigested in dung is very considerable, as may be shown by a very curious practice obtaining in some rural districts of Norway. In long winters, when the supply of fodder runs short, it is the custom to shovel out the contents of the horse-stables carefully spadeful by spadeful on the snow. After a short time, cattle are allowed access to this curious food, which is eaten greedily. The food being twice digested, it is evident that the second lot of manure is worth almost nothing.

Cattle-dung is still held in most countries of the utmost importance. In Saxony, where wheat is largely grown, vast herds of cattle are kept to produce the manure needed. It is true that dairies are also established in connection therewith, but take quite a secondary place. The milk or butter may be sold, or it may not; but as long as the manure is supplied, the Saxon wheat-farmer is content.

As we have already observed, the value of animal manure depends closely on the quality of the food consumed. Of the usual foods given to cattle, cotton seed meal is by far the richest in nitrogen,—one thousand pounds containing 70 lbs. against only 1½ lbs. in turnips. Malt sprouts, 37 lbs., and clover hay, 21 lbs., come next. Wheat straw com very low on the list, containing only 3 lbs. of nitrogen p 1,000 lbs. In phosphoric acid, cotton seed meal is aga first, with wheat bran a good second, and malt sprouts indifferent third. In potash, also, cotton takes the lea closely followed by malt sprouts and clover hay. T general manurial value of each food may be expressed numbers, taking turnips at ·67. Cotton seed meal lea with 18·39, malt sprouts is second with 10·64, while whe bran is third with 8·52.

Young cattle, needing all the phosphates and nitrog they can get to form their bones and flesh tissues, natura leave their manure almost destitute of these two constituen

The dung of flesh-eating animals is of course very ri in nitrogen, while that of mixed feeders—like men, poultr swine—is also of a high quality. As we have shown the above, food controls almost wholly, other things bei equal, the value of dung.

Of liquid and solid excreta, the former is generally mo valuable, as it is without doubt the most soluble. It interesting to note that there is more solid matter per d in human urine than in fæces.

The changes that cattle-dung undergoes when stored, exposed in the field, are curious. Thus, in a well-knov experiment, a heap of manure 3 to 4 feet high, weighi 14,300 lbs. when fresh, and 3,975 lbs. when dry, bei exposed for a year to the influences of the weather, w reduced in bulk to 1 foot in height, while its weight w 6,730 lbs. moist and 1,360 lbs. dry.

The percentage of nitrogen before and after exposu was as follows:—

Nitrogen.	*Fresh.*	*Exposed.*
Soluble	... ·63	·30
Insoluble	... ·86	1·70
Total	... 1·49	2·00

The old manure has lost considerably in its percenta of soluble nitrogen, though it is richer in insoluble nitroge The total loss of nitrogen is nevertheless very considerab For if we reckon it out, the total nitrogen contained in t exposed manure only amounts to 2·73 lbs. against 6·60 l contained in the heap of fresh manure. Weight for weig however, old manure contains more nitrogen than wh fresh, though it is poorer in the soluble nitrogen, which the only one worth considering. It is sufficient to point o the huge loss of nitrogen that takes place when dung exposed to the weather, more than half being lost in t course of a year. In the planting districts, where t rainfall is so abundant, the loss would be even greater.

NOTES.

Exports of tea. The total sailings of tea fr Calcutta from the 1st April 1897 31st December were 130¾ million against 128⅛ m. t previous year. This was divided among a number different countries, first of which, of course, comes Gre Britain with 118½ m. against under 116½ in 1896. Austr asia took 5¾ m. against 4⅘ m. in 1896 and almost 5¾ m. 1895. America shows a falling off in direct shipments, bei 2 1/10 m. in 1897 against nearly 2½ m. in 1896. Ceyl

exported almost 108¾ m. from 1st January to 21st December 1897 compared to 102½ m. in 1896 and 91¼ m. in 1895.

Drought and coffee. One of the greatest difficulties which beset the path of the Nyassaland planters is the insufficiency of their rainfall. To conserve moisture, therefore, is one of their most urgent questions. Among other methods, excellent in themselves, is recommended trenching. We suppose by trenching is understood the usual system of digging continuous trenches between each row of plants, though we are not quite certain if this be so, for the *Central African Times* talks of *light trenches* being useful as a mulch. If light surface cultivation is meant, our contemporary has hit the right nail on the head, except as to the time this operation should be performed. Light surface cultivation can, and should, be undertaken in the driest weather. Otherwise the soil will "pack" and induce the very flow of moisture upwards, which it is desired to avoid.

Pumpkins for milch cows. Those who dabble in the dairy business may be interested to know that, in reply to an enquiry, Professor W. A. Henry, of the Wisconsin Experiment Station, says in Hoard's Dairyman :—"The pumpkin is a splendid feed for dairy cows in the fall, and our dairy farmers cannot use them too liberally. The dairy cow likes variety, and pumpkins can be grown so easily, and yield so well when planted by themselves, that a prudent dairyman will not forget this useful adjunct to his usually rather short list of feeding stuffs. The pumpkin, containing much nourishment, and being very palatable, tends to produce a large flow of milk. The seeds of the pumpkin, are said to increase the action of the kidneys, and I think the statement entirely reasonable. It is well, therefore, in feeding pumpkins in quantity, to rid them first of seeds, which can be done easily and rapidly."

Agricultural chemistry in Nyassaland. In a recent number of the *Central African Times*, we notice a strong leader headed "Wanted an Agricultural Chemist." The article was based on Mr. J. A. Harris's speech on scientific investigation at the last U. P. A. Meeting at Bangalore, which speech is reproduced in full by our contemporary. The need for scientific assistance in Nyassaland seems even more urgent than in South India : "Owing to difficulties in the way," says the *Central African Times*, "it is practically impossible for a man to come out here, and after putting in (*sic*) his plantation and working up his place, depend upon getting regular returns. . . . It is proved beyond a doubt that coffee will grow and bear crops of 3 to 6 cwt., but the plant gets easily exhausted. . . . . All we require is reliable help to enable us to *prolong* the bearing period of the plant." Very sound and sensible advice without doubt, but to base it on what South India is going to do, reads just a little funnily in the light of what has passed since that interesting speech by Mr. Harris was delivered.

Mr. Bamber on the Davidson Tea Roller. It will interest many of our readers to know that Mr. H. Kelway Bamber, who is already well-known to Tea Planters as an authority upon all matters touching the manufacture of tea, was amongst Mr. Davidson's visitors when he was showing the model of his roller in London and Mr. Bamber has since then expressed it as his opinion that the rolling motion given to the leaf in this machine, and the coolness which is at the same time maintained in the leaf during the rolling process, could scarcely be surpassed, while the machine itself is a combination of strength and cleanliness, with evidently a great economy of power. Mr. Bamber further stated that, after having carefully perused Mr. Davidson's new catalogue, he considers that in the machines now illustrated and described for the first time, and also in the older machines, with the improvements which Mr. Davidson has lately made on some of them, the several chemical and other requirements for the manufacture of good tea are eminently combined.

The four soil workmen. Assuming that all food elements required are present in sufficient supply in a given soil, says an exchange, four important agents must still co-operate before the seed can germinate and the plant partake of the foods provided. These are heat, air, water and light. If there is a deficiency or excess of any one of this quartet, plant life suffers ; if all are present in right proportions, the plant reaches its highest perfection. Each plant has its own requirement of heat, air, and water, but when a fine-texture soil has a temperature of 75 to 90 degrees F., and contains 20 to 30 per cent. of its bulk of water, or 16 to 20 pounds of water to each 100 pounds of soil, and the air can permeate freely, we have the most favourable conditions for the growth of our ordinary field crops. This would mean a temperature about equal to the summer of 1895 in Eastern Kansas, with a supply of water in the soil equal to three inches constantly maintained for every foot in depth of soil. It would also mean a soil in good physical condition, that the air may co-operate with the heat and water.

The Pension Scheme again. Under this heading, our worthy contemporary, *the Indian Planters' Gazette*, notices the revived interest now taken in this subject in Upper India. Until, however, it is thoroughly grasped by the great Calcutta Companies, that the move must come from the employers—and not the employed—any scheme for starting a Provident or Pension Fund for the planting community must fail. Such action may, in truth, partake of grandmotherly nature, and in consequence be resented by the beneficiaries. They may be conciliated by the owners,—be they private planters or companies, paying a proportion of the monthly premia, if only for the first year or so. The main fact to be borne in mind is that the benefits from such a fund will be as much to the good of the proprietors as to that of their employés. Planting life has long suffered under the stigma of being uncertain, happy-go-lucky,—anything, in fact, but stable. This defect removed, as it would partially be by everyone—save private owners—being compelled to subscribe to the Provident Fund, would be to mutual advantage of the whole industry.

A live soil. In an interesting article in the *Central African Times*, Mr. Hizton describes in popular language the function of micro-organisms in the soil :—"When air, water, and heat are in right proportions, the soil is full of life. When the soil is barren, we speak of it as being a 'dead soil,' and when fertile, a 'live soil,' and this is the actual fact. When it is fertile, it is

teeming with life. When there is no activity in the bacteria of the soil, it is barren. The work of these lower organisms is important. German and French investigators have found from 500,000 to 900,000 germs in a gram of soil (less than half a cubic inch). These micro-organisms can only exist where organic matter is present, and will be many or few as organic matter is abundant or scarce. They are dormant when the temperature of the soil is below 39 degrees F. or above 115 degrees F.; dormant when the moisture contents of the soil falls below 8 to 10 per cent., or about one inch in depth of water to one foot in depth of soil; dormant when the soil is fully saturated with water and dormant when air is excluded either by too much water in the soil or by soil compaction. They are most active when the soil is about half saturated; that is from 20 to 30 per cent. of the bulk of the soil, or say 16 to 20 pounds of water to each cubic foot of soil, and when the temperature of the soil is 75 to 90 degrees F., and the air has free access to supply oxygen."

The coffee market.

A further fall of 1*s.* to 1*s.* 6*d.* has taken place in the terminal market, says the *P. M. Review* of 8th ult., caused by the receipts at Rio and Santos being larger than were expected, and a decided reduction in the Brazilian exchange, which is again below 7*d.* Towards the end of this month some reliance may be placed upon estimates of the growing crop, and should they be unfavourable, an advance would undoubtedly take place, as reports from other producing countries mostly point to smaller crops, that in Java being said to be almost a total failure. Since the recommencement of the auctions on Tuesday, there has been a rather better supply, including both new crop Costa Rica and East India. Of the former, one fine mark, though not quite equal to its average quality, sold at extreme prices; the remainder, which was only of medium quality, sold fairly well, but on a much lower basis than the opening sales of last year. The few marks of East India received were more suitable for export than for the home trade, and though the bold sorts sold at full rates, the next sizes were decidedly cheaper. Of other kinds the sales have been unimportant, and quotations are mostly steady.

LONDON COFFEE RETURNS.

—	HOME CONSUMPTION.		EXPORT.		STOCK.	
	1897	1896	1897	1896	1897	1896
For the week ended Jan. 1, 1898.	Tons. 144	Tons. 138	Tons. 148	Tons. 62	Tons. 9,792	Tons. 8,515
For the 52 weeks ended Jan. 1, 1898.	14,052	14,242	21,106	19,876	—	—

Thorough firing and packing of tea.

The London correspondent of a contemporary has some interesting notes on the firing and packing of tea, though low firing and "fine malty-burnt flavour" are scarcely compatible with each other:—"Looking over samples in a broker's office the other day, some teas struck me as selling considerably above their value. In reply to my query, the broker said, 'but they have such a good aroma, that fine malty-burnt which you so seldom g now,' which remark led to a discussion on the firi question. He said there was no doubt teas generally we fired at too high a temperature, and, consequently, avoid burning, were not thoroughly done, from whi resulted want of keeping power, and much of the dull f smelling teas met with in the market. I have no dou there is much truth in this, and teas would arrive in mo satisfactory condition, if at least the latter part of the firin as well as the final firing, was done at a much low temperature than is the usual custom. To do this thorough in all cases means a larger consumption of fuel, and many factories would also require more drying machiner but it would, I believe, amply repay the expenditu From this we went on to discuss packing, and he sai An old planter was saying to me the other day, 'I w always careful to solder in my tea hot.' My reply to th was that I was afraid many more were not sufficient careful not to pack or solder their teas before they we nearly cool, as so long as the tea is hot, it continues to gi out moisture, and it should be allowed to come within n many degrees of the atmosphere before it is packed. have not experimented on this myself, but I would advi some of your readers to try the experiment of packing o chest as it comes off the fire at, say, 240°, and another wh the tea has cooled down to about 100°, and opening the some days afterwards to see which tea seemed in t better condition. Since I had this conversation with n broker friend, a dealer has been asking my opinion on t same subject, as he often found some damaged tea on the t of the chest, though the rest of it was in good order, a this he attributed 'to the tea sweating when packed hot.

The tea market.

Indians.—The quantity catalogu for public sale was smaller than usu for the week following Christmas, says the *P. M. Review* 8th ult., being only 40,97 packages. A good dema prevailed, and prices were somewhat higher than in t closing sales of last year. The inquiry is mainly for t medium and lower descriptions, particularly for the form owing to their cheapness and to buyers evidently appreci ing the fact that it will be difficult to follow present pu chases, especially Assam growths, later on. This also mo or less applies to other growths, as the autumnal Teas w soon be coming forward in increasing quantities; indee many of the parcels in the latest sales had this flavou Dooars growths continue to show improved quality, a meet with a fair amount of competition; while the Assa are quite up to the average and have been readily boug as they are, no doubt, the most useful kinds for blendi purposes. On the other hand, Sylhets and Cachars do n show much improvement, a large portion being of po quality, and this will probably continue to be the case f the remainder of the season. Darjeelings are not ve desirable, the bulk of the supply being almost devoid of t flavour sought after in these growths, while the Travancor with few exceptions, are poor in cup. The following a the figures for December, compared with those in the sa month of 1896:—Imports 21,061,000 lbs., and 18,426, lb deliveries 11,389,003, lbs., against 11,584,000 lbs.; wh the stock is 61,673,000 lbs. and 54,144,000 lbs. respective

Ceylons.—This market opened on Tuesday last, wh the sales consisted of over 26,000 packages, and it w

xpected that with this important quantity, and the pro-ıbility of continued large supplies to come forward, prices ould be forced down to a somewhat lower level. This, owever, was not the case, as the market opened firmly, and ıe closing rates of 1897 were well maintained. This result as due, in some measure, to the buying of several of the rger blending houses, as the quality of the teas generally as not otherwise sufficiently attractive to warrant the good l-round bidding that ensued. The following are the figures r the past month, compared with December, 1896 :—The nports amounted to 6,136,000 lbs. against 7,387,000 lbs., nd the deliveries were 7,286,000 lbs. and 6,990,000 lbs. espectively, while the stock stands at 16,629,000 lbs. as ompared with 18,354,000 lbs.

merican tea market difficulties.

The main trouble with India and Ceylon teas in the American market, states a memorandum from the New ork Office of the Indian Tea Association, is that when teas re sold forward on samples, it is most difficult, if not mpossible, to make the goods match the sample.

A firm may order from standard sample a couple of undred chests of tea ; when the shipment comes forward, his is found to be made up of several "breaks" from one arden, or even from distinct gardens. These lines must iffer somewhat under present conditions of manufacture, nd, as a consequence, the buyer has a right, and exercises t, of rejecting those which are least like the sample. ndeed, he may reject the entire shipment. This may be lone in perfect good faith, for he, in turn, may have sold to is constituents on the original samples, but finds the goods re not suitable for his trade either on account of leaf or iquor not having been matched.

In the event of such rejection, a great deal of cross cor-espondence ensues. The tea may have been paid for on etter of credit. The merchant rejecting it has to notify the ocal agent, who, in turn, notifies his principal in Calcutta r Colombo. Bills have then to be drawn on the shipper, nd there is a delay of from two to three months before natters are adjusted. Or the tea may have been shipped and he documents drawn against. The bills have to be accepted by the merchant who ordered the tea, purely as a matter of courtesy, and bills drawn against the shipper.

In the case of the shipment being taken over subject to revelation and an allowance made, the same tedious process nas to be gone through. The merchant buying on mail samples feels he is running risks, as he is not buying on actual samples drawn from the chests as he would do if the tea was on the spot, or were he a buyer in London, Calcutta, or Colombo. The gist of this trouble is that it is apparently impossible to rely upon teas ordered on samples being matched.

This trouble will exist so long as no provision is made for blending teas in the Eastern markets. Until then there is no guarantee that samples will be accurately matched, and the trade is carried on practically upon the local agents' good character and reliance upon his good faith.

In some cases the buyer of a house refuses to buy on samples, and will only go so far as to order teas on approval. Such orders are at the risk of the local agent, and he in turn has to rely upon the Calcutta buyer following his instructions as to selection of tea. In filling the order, the same difficulty occurs in obtaining long lines, and the shipment is composed of several breaks bought at different prices averaging the limit imposed. The buyer here may select the teas which brought the highest price, and the balance on sale in the open market may lose the shipper the entire margin of profit which would have been obtained had the whole line sold at the average expected.

All in this class of business are of opinion that it would be better, in cases where tea cannot be matched absolutely, or where only a portion of an order can be filled to match the standard, that that portion only be shipped, or the order left unexecuted, rather than that buyers here should be subjected to the trouble and annoyance of dealing with teas they do not want and have not ordered.

COFFEE SHADE TREE.

Sun-dried Erythrina Lithosperma loppings, &c., contain per ton :—

61·50 lbs. Nitrogen.
57·38 „ Potash.
14·92 „ Lime.
13·68 „ Phosphoric Acid.

Seed cured under Messrs. Sutton and Sons' advice.

Orders should be booked early for the coming crop of seed from the parent trees of above analysis at Rs.6 per pound containing about 2,000 seeds. *Germination guaranteed.*

Only thornless variety extant, and is not procurable anywhere save from the

MANAGER, ARIENKOW ESTATE,
Shencottah.

LETTERS TO THE EDITOR.

OIL OF LEMON GRASS.

Sir,—In the last issue of *Planting Opinion* I saw "Oil of Lemon Grass" quoted at 8*d.* per oz. Can you give me, or get for me, particulars of manufacture ? Also tell me if there is any *special* lemon grass needed, or is the common stuff what is wanted ?

Any information on the subject will be esteemed

"By Product."

WANTED : A SUBSTITUTE FOR FISH MANURE.

Sir,—Owing to the failure in the supply of fish manure this season, I shall be much obliged if you, or any of your scientific friends, will suggest, through the medium of your valuable paper, what they consider to be the best alternative manure to take the place of the "Fish ?"

Coorg Planter.

[As the most important manurial constituents of fish are nitrogen and phosphoric acid, a very efficient substitute would be a mixture of bones and poonac. The bones would supply the phosphates, and give lime in addition, while the poonac would give all the nitrogen required.—Ed.]

E. LITHOSPERMA SEED.

Sir,—I am sorry to see "Seed's" letter in *P.O.* From his description of the treatment his *E.L.* seed was subjected to, and their subsequent appearance, there is little doubt that he has *cooked* them.

Soaking the seed in cold water for two or three days is all right ; but the same results can be obtained by sowing at once in the nursery and keeping *well-watered*, say, three times a day until the plants are up.

Getting *wet* and *dry* in the nursery, alternately, is, I have found out, most fatal to the seed.

Light shade is advisable, as the plants have a tendency to burn off as they appear above ground.

Arienkow, Shencottah,
25th January 1898.

B. Nelson.

TERRACING vs. DRAINS.

I.

SIR,—I have followed the articles on the above subject appearing in *P.O.* with the keenest interest, owning a good deal of coffee on steep land in an annual rainfall of 100 inches, and being of opinion, from long practical experience, that in course of time "wash" will denude the steeper portions of its best soil, unless something in the terracing line be done. I quite agree with "H.W.P." that no system of drains on steep land can prevent wash, while terracing will. "1 in 2" is quite correct with regard to cost of drains being insignificant when compared with cost of terracing, yet I am of opinion that at an outlay of Rs. 30 to 50 per acre to obtain a permanent safeguard against denudation would annually repay the first outlay, and render a property a great deal more permanent than otherwise. "1 in 2" gives as a great objection to terracing every line the fact that a greater surface of the soil becoming exposed to the desiccating influences of sun and air will have the ill-effect of drying the soil, and in times of drought the plants dying out altogether. He says "this is no theory; it has been proved often and disastrously enough in most districts." With the exception of plants under one year old, I have never known coffee trees die of drought; and although most of the coffee I know is in an annual rainfall of 50 inches and subject to a five months' drought annually, yet, and even with coffee "in the open," a long drought invariably promotes a heavy wintering, resulting in a heavier crop, and I am positive that in this district (Kadur) no ill-effect need be anticipated from desiccation. In support of above, how often do we all see coffee plants growing above the cuttings of our roads with sometimes half the roots bared and exposed, and yet these trees are none the worse, and crop away splendidly. "1 in 2" also says "the coffee plant is a very shallow-rooted shrub," but he must not forget that the tap-roots of full-grown plants reach to a depth of over four feet. "1 in 2's" objection to broader terraces (10 ft. wide) is quite sound; in fact on reading "H.W.P.'s" first letter giving 4 feet wide as the average width of terraces in Peermaad, it at once struck me that the wider plantings of Southern India (generally $5\frac{1}{2}$ ft. or 6 ft.) necessitating wider terraces and consequently deeper cuttings on the upper side, was almost the one objection to his plans being adopted here. On land of a gradient of even 1 in 1 and plants $5\frac{1}{2}$ feet apart, the cuttings below the surface would be $2\frac{3}{4}$ ft. on the upper extreme of the terrace, decreasing to the centre, where the original level of the land would be maintained, the thrown soil from the cutting would be banked up below the plant forming the lower half of the terrace. I cannot see how the argument of insufficient depth of soil holds good in this case, as the plants would be standing in the original soil and only the soil from the upper half of the terrace from high up and above the plant roots will have been removed and placed in a much more readily available position, and it is not difficult to place the top soil near the plants (centre of terrace) and utilize the subsoil and stones for constructing the embankment. A real objection to the above works may be the difficulty in making the terraces hold together without slipping, and on this subject, as also the current rates of terracing in Peermaad, some remarks from a planter who has done this work extensively would be much valued and accepted. I have written the above not to air my views but solely to invite criticism and discussion on a most interesting subject. I am a practical planter, and I regret my pen be not that of a ready writer.

KADUR, MYSORE,
20th January, 1898. NEMO.

II.

SIR,—Your correspondent "1 in 2," who writes on the above subject in your issue of the 15th instant, does not seem to realise what his *nom de plume* means, for he evidently considers that "cutting into hard subsoil to make terraces" would be neces on all ordinary hill plantations, the average slope of whic if anything, less than 1 in 2. But in your issue of the instant, it was shown by me that the cutting required to ma four-foot terrace, on ground having such a slope, woul only that of a triangular "bench," whose base was two feet height one foot, so that the maximum depth of cutting requ would be only a foot, while the average depth would be *inches*. And as "the first foot of soil is ever so much che to dig than the second," the cost of terracing an acre sh not run out to very much.

In regard to this cost "1 in 2" considers the calculat which I gave as extraordinary; apparently because I did quote any money rates, which he thinks I should have ascer ed locally. But all considerations of such money rates purposely avoided by me, and only the actual quantities of calculated, because in the first place, only a comparison betw the two systems was required, and the work (surface digg being the same in each, this comparison was not affected by rates; and secondly, because money rates may, and do, vary each locality, although the quantity of work remains the sa

In the calculations I gave it was assumed that the d would require to be annually cleared of an amount of silt e to their capacity, but "1 in 2" states that "the amount of deposited would be half the depth only." This modifica practically amounts to adding about a year on to the tim which the costs of the two systems would become equal.

For under it in four years time and in 1 in 2 ground the dr would require $3,780+4\times1,890=11,340$ cubic feet of dig work against 10,500 cubic feet for terracing. Similarly in 1 ground the drains in three years time would require $3,360+$ $1,680=8,400$ cubic feet of work against 7,000 cubic feet only terracing.

It should be noted that these are the actual amounts of w or labour required, and if the rates of payment are just, should be proportional to them.

"1 in 2" states that the cost of cutting the six drains woul from Rs. 7 to 10 per acre, and that they could be cleaned out a annual cost of only Rs. 2 per acre. If his second rate (per 1, cubic feet for the earthwork), which appears a very low on correct, he would be paying his men more than double on first! Moreover, applying either of these rates to the quantitie work given above, the ratio between the costs of the two syst would still be the same, and the time in which they become e would be unaltered. Of course if, as "1 in 2" finds terra costs from Rs. 30 to 50 per acre against only Rs. 10 in charge, and Rs. 2 maintenance for drains, it would require years to make the costs of the two systems equal. But ther no reason why terracing should cost so much, for the quant of work required, as shown by me above, become equal in than three or four years according to the slope. Thus tak the lower of the two rates mentioned by "1 in 2," which equivalent to about Re. 1-2 per 1,000 c. ft. of digging work, cost of terracing in 1 in 2 soil would be only Rs. 11-13 acre, and in 1 in 3 soil it would be less than Rs. 8 per acre. rate, however, as stated before, is a very low one, and the cost would probably be about double these amounts.

A great objection that "1 in 2" sees in terracing is that it poses an increased surface of soil to desiccating influences of and air; and he suggests either to have wider terraces with rows of plants on each, or else a series of one-foot deep trenc between every two rows of plants.

This objection, however, is limited by him to coffee est only, and appears to be due to his misconception of the de of cutting required for terracing, which he evidently regard considerable. But, as shown above, the maximum depth cutting for terracing in 1 in 2 ground is only 12 inches, the average depth is 6 inches, or *half* that which would

equired for his trenches at the same time, while the terrace ould expose only one cut face to the sun and air for each row f plants, the trenches would expose two. The proposal to ncrease the width of each terrace and put a double row of lants on it, would neither remove nor reduce the exposure of ne outer row of plants, while the increased width would very onsiderably increase the depth and cost of cutting the terraces. o also the suggestion to build low retaining walls where the eld to be terraced was "exceptionally rocky,"—if such a field ould ever be cultivated and need terracing,—would add normously to the cost of the work. Lastly, but not leastly, n the trench system the slope of the ground surface would emain unaltered, instead of being reduced to almost zero in the errace, and the denudation of the surface soil, as explained in ny first letter, would go on the same as before, not only mpoverishing the soil, but also silting up the trenches of which here would be no less than thirty-six to dig and maintain n every acre, against six in the ordinary system and *none* in he terraced one.

PEERMAAD,
27th January 1898. } H. W. P.

DISTRICT ASSOCIATIONS.

CENTRAL TRAVANCORE.

A Committee Meeting of this Association was held at Penshurst Bungalow on January 22nd at 10 A.M., when there were present:—Messrs. F. M. Parker (*Chairman*), H. W. Baker, R. H. Goldie, R. S. Imray, B. Laurie, and A. E. Veale. Dr. Joseph also attended by special request.

Medical Fund.—The Honorary Secretary informed the meeting that H. H. Government had sanctioned two medical grants-in-aid of Rs.100 each per mensem to the Bon Ami and Carady Goody Dispensaries, the former from 15th February 1896 and the latter from 22nd December 1897.

Recorded with satisfaction.

The Honorary Secretary was instructed to indent for instruments as required by Government Regulations as speedily as possible.

Plans of proposed new Doctor's bungalow, Medical Store, and Consulting Room and Dispensaries having been submitted and approved, the Honorary Secretary was instructed to call for tenders for their erection.

The following rules were then framed and adopted:—

(2) That the Doctor and Apothecaries be each required to keep a diary.

(1) That every employé of the fund be allowed one month's leave per annum on full pay.

Read Doctor's applications for horse allowance and leave.

Resolved: "That the Doctor be allowed Rs. 25 per mensem for horse-keep."

"That the Doctor be permitted to take one month's leave from 10th February."

With a vote of thanks to the chair the meeting terminated.

A. E. VEALE,
Honorary Secretary,
January 25th, 1898. *C. T. P. Assn., Medical Fund.*

WYNAAD.

PROCEEDINGS of the Annual General Meeting held at Meppadi Club on January 5th, 1898. *Present*:—Messrs. Abbot, Behr, Day, DeFonblanque, D. Mackenzie, W. R. Mackenzie, Mackinlay, B. Malcolm, J. R. Malcolm, Robinson, Romilly, Tayler, Trollope, Waddington, R. K. Walker, West, Wright, and Hockin, *Honorary Secretary*. Mr. G. Romilly, *in the chair*.

ANNUAL REPORT FOR 1897.

The Hon. Secretary read the following report for the past year:—MR CHAIRMAN AND GENTLEMEN,—In this report I propose to follow the lines of the last annual report, adding fresh matters in the proper place.

1. *South India Planters' Enquiry Committee.*—The report of the Committee reached us early in June, and the Government of Madras were good enough to give us time till after the Annual U. P. A. S. I. Meeting in August to discuss it. Although the Committee did not approve of all the reforms planters asked for, yet the chief findings are so much in accord with the planters' case, that our 30 years' agitation about the Labour Law is fully justified. Whatever may become of the actual recommendations of the Committee, we have in the report a record and vindication of our cause, which will strengthen our hands enormously in any action which it may be necessary to take in the future. As such, the report was cordially approved of by this Association and the U. P. A. S. I., and the recommendations accepted with the exception of two or three points of minor importance. 2. The Proceedings of the last annual meeting were fully reported in the papers, and the report of the delegates of this Association printed in our September Proceedings, so that I need only refer briefly to the chief results of the meeting. The finances of the Association were reorganised and established on a basis which, it is hoped, will give the U. P. A. S. I. a steady income of about Rs.5,000 a year. This basis is a vote for every Rs.10 subscribed by each District Association, such subscription not to exceed 1 a. or fall below ¼ a. per cultivated acre in each district, and the votes to be held by the delegates of the Association. The scheme of individual membership was generally disapproved and withdrawn. A Reserve Fund of Rs.8,825-12-0 was established, of which Rs.5,000 has been placed at deposit with Messrs. Arbuthnot & Co., and the rest kept in hand to meet payments voted, if certain conditions are fulfilled. One of these payments is Rs.2,000 towards the introduction of lady-birds to combat scale pests, and I think this payment will have to be made, as the Govt. of Madras have agreed to pay half the cost, and the Lower Pulneys are also prepared to pay up handsomely. Another payment was Rs.2,000 per annum towards the expense of an Agricultural Chemist, if District Associations and the various Governments concerned will also contribute. I think it doubtful if this payment will be made, as I am informed the Mysore Govt. will engage a chemist and collect subscriptions for Mysore planters, and that the only other district which will contribute any considerable sum is the Nilgiris, which promises Rs.2,100 per annum. The Shevaroys may also subscribe, but two districts will hardly provide enough money to start such an expensive scheme. The third payment is Rs.1,000 towards the expenses of Mr. Cameron, if the Mysore Govt. will lend his services for the improvement of the strain of coffee. I do not know if this payment will be required or

The Wynaad and the Planting Industry of Southern India, by FRANCIS FORD, Re. 1.

The Planting Directory of South India, Re. 1-8.

Tea Planting from Seed to Cup in Tamil, with English Translation. Re. 1.

Sketch History of the Planting History of Wynaad, by the late ADOLPHUS ARTHUR WRIGHT. Re. 1-8.

Science and Coffee, by the late MR. WM. PRINGLE, M.S.C.I., Re. 1-8.

Report of Observations of Injurious Insects and common Crop Pests during the year 1883, with methods of Prevention and Remedy, by Miss ELEANOR A. ORMEROD, F.R.Met.Soc., &c., Re. 1-8.

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Correspondence and matter for publication to be sent to Editor, this paper, Coonoor.

not. The other important resolutions passed were in favour of reopening the mints; of an export tax on bones; of the registration of the U. P. A. S. I. as a public company; of paying counsel's fees and legal expenses in connection with the case referred to the High Court *re* warrants under Act XIII. of 1859; of the investigation of the malarial parasite when Govt. funds allow of it; and of the U. P. A. S. I. backing up all complaints from District Associations about important roads. The Govt. of Madras has strongly recommended to the Govt. of India the U. P. A. S. I. resolution of 1896 in favour of the exemption of chemical manures from import duty, and has authorised the Director of Govt. Cinchona Gardens to purchase from planters in India any bark which may be required to supplement the supply from the Govt. Gardens. The rules of the Association were amended to meet the new scheme of voting and finance, and a portion of *Planting Opinion* is to be devoted to U. P. A. S. I. matters under the control of the Secretary. As I was unable to get any adequate return of Wynaad statistics, I asked the Secretary to take those given in *Planting Opinion* and these are published in the appendix to the report of 1897. I would ask members to refer to this, and correct any mistakes they find through the Hon. Secretary.

Roads.—As usual this subject has received considerable attention from the Association. It has come up at every meeting this year, and a special meeting was called in May for the Vayitri-Calicut road. Before this meeting, however, I had asked Mr. Romilly to interview His Excellency the Governor on the subject, and was able to assure the meeting that His Excellency hoped to have a special grant made at an early date. The District Board had estimated that a grant of Rs.26,000 from Provincial Funds would be required to enable it to put the road in proper order. At the end of August I received a telegram to the effect that a grant of Rs.20,000 had been made. The remaining Rs.6,000 is the usual annual Provincial Fund grant which for some unknown reason was omitted. Of the Rs.20,000 sanctioned, Rs.14,000 was for the Talipoya bridge, and I see from the District Board Proceedings of the 9th October, that Rs.10,000 is to be spent this year and Rs.4,000 held over till next year. Of the other Rs.6,000, Rs.6,700 was sanctioned on the same date for special repairs to deep tracts on the Tamaracherry ghat and the remainder was spent on the section of the Vayitri-Calicut roads below the ghat. Our request for the deputation of an independent officer to report on the system of roads in Wynaad was refused; but we have an excellent advocate of our cause in the President of the District Board, to whom our best thanks are due. In August last I addressed the Secretary to the Dewan of Mysore on the condition of the Mysore section of the Sultan's Battery and Mysore road, and receiving no answer, sent him a reminder. Lately I received a request that I would furnish him with a copy of my letter, which had apparently miscarried, and forwarded the copy asked for.

Act XIII. of 1899.—A form of contract under this Act has been drawn up by Messrs. Winterton and Edge, and twice revised. Copies of the new form have been sent to all members of the Association. On a reference being made to the High Court by order of the Government of India, it has been decided that warrants under the Act can be legally executed outside the jurisdiction of the issuing magistrate, as has been the custom for the last 38 years.

Famine Fund.—Rs.1,195 have been collected from members of the Association and forwarded to the Secretary, U. P. A. S. I.

Treasury.—We have twice had to complain of the absence of small change, and once of the absence for nine days, of any money at all to cash money orders in the Vayitri Sub-Treasury. The replies from the Postmaster-General amount to a statement that an enquiry will be made, but I have not heard the result of these enquiries. I have, as requested, addressed the Hon'ble Mr. H. P. Hodgson, and asked him to make an interpellation in Council as to whether the Postal Department is not bound to cash all money orders on presentation. The replies from the Collector of Malabar state that the want of small change, or cash generally, is due to the difficulty of getting police for escort duty, and that the Inspector-General of police has been asked to supply more police for Malabar. As the Post Office makes an income of Rs.400 to Rs.500 a month from money order commissions in Wynaad, it does not seem asking much that it should retain enough police in its pay to secure an escort for money when necessary. The granting of drafts on local Treasuries has been refused, although we have addressed both the Governm of Madras and India on the subject. I understand that a si concession in Coorg is only granted because Government has m there it cannot employ otherwise.

Medical Fund.—This has been reorganised and subscription now raised on an acreage assessment. As a consequence we provide a doctor and four apothecaries, where we formerly supp only a doctor and one apothecary.

Miscellaneous.—The Association approved of the agitation for reopening of the mints, but disapproved of the schemes for disease remedies and the employment of an agricultural chem and has not subscribed to the introduction of lady-birds to con scale pests. A register of planters who pay tax direct to Gov ment has been opened in the Wynaad Tahsildar's Office, so that lands may not be sold for default of our jenmies A complaint to non-service of warrants in Coimbatore has been met by the is of a circular by the Superintendent of Police to all Inspect warning them that neglect of duty under this head will be seve punished. I believe one Inspector has been suspended and fi but I have not yet caught a man one of my maistries has b hunting for months back. The Association has agreed to pa monthly subscription towards the Pudupadi Hotel, but it is easy to see where the money is to come from unless subscripti are raised. Finally, it has been resolved to appoint a Chairman Committee yearly to conduct the business of the Association.

General Remarks.—We have lost one member by death and two h resigned. Three new members have been elected, so that the num of members still stands at 40. Tea continues to be extended, will shortly require an increased supply of labour, which it sho not be difficult to get. Arabica crops are very short this year, a the case in most parts of Southern India. Prospects for next y are, however, very good, there being every indication of a plent show of spike. Liberian coffee continues much as last year, an not likely to be extended largely until good crops are realised. of the greatest dangers to the future prosperity of the district in the action of Government in forcing up exchange, while our c petitors in both tea and coffee enjoy an unprecedentedly low rat exchange. With Brazil exchange at the equivalent of 7*d.* per ru and consequently Brazil coffee in superabundance @ 25*s.* to 30 cwt., we may consider ourselves lucky that our prices for Arab coffee have fallen only from 100*s.* to 80*s.*, although Liberian gone down from 75*s.* to 45*s.* Any further fall in price, coupled w high exchange, would render the cultivation of Arabica unprofita It is difficult to regard with equanimity the adherence of Gov ment to a policy which threatens to ruin our industry and whole export trade of India. Another very great danger to prosperity is the insufficient grant for the upkeep of roads. E of the small allotments made this year, that for the Chundale-Mys frontier road has been reduced, and the President of the Dist Board informs me it will be necessary to again reduce the grant Wynaad roads very largely in 1899, in order to allow of repairs other important roads in Malabar. The effect of the reduction year has been a serious deterioration in the roads, and consequen of higher prices for all food supplies than should have ruled e in this year of famine. These high prices if continued will hav most disastrous effect on our labour supply, just as it has bec necessary to increase it largely. We should leave no stone untur to endeavour to obtain from Provincial Funds grants for our ro similar to those given in Nilgiri-Wynaad for the sections of roads which lie in that district. The weather has not been so ba last year, but this year's rainfall is the third heaviest rainfall record in twenty years, and last year's was the heaviest. That of year before was well above normal, and we must hope that a three years of abnormal rain, we may have a return to lighter more normal monsoons. I lay the accounts on the table, and will see from them that it will be necessary to consider how fu are to be found to meet the present expenditure. It only remains me to lay my resignation in your hands, and to say I shall be glad if some other gentleman will consent to be Honorary Secret as I find I have not time to attend to the business properly. work is much more than it used to be, and promises to be hea still in the future. Whoever takes the post should, I think relieved of part of the work. If this can be arranged by

MILLIE & REDMOND, late P. THOMPSON & CO., *Ootacamund, Engineers and Contractors.*

Chairman and Committee, each of them taking charge of one or two branches, I am sure no one will welcome the appointment of the Committee more than the Honorary Secretary will.

J. WILLIAMS HOCKIN,
Honorary Secretary, W. P. A.

Proposed by the Chairman, seconded by Mr. R. K. Walker, that the report be adopted. Carried unanimously.

2. *Finance.*—The accounts for 1897 were circulated and passed; Rs.100 were subscribed in the room to meet the deficit shown therein.

3. *Vote of thanks to the Hon. Secretary.*—The Chairman proposed a cordial vote of thanks to Mr. Hockin for his services during the four years in which he had held office. Mr. Hockin had been a most excellent Hon. Secretary, and had done a great deal of important work for them, especially with regard to the Revenue Settlement, and he (the Chairman) was very sorry he was not offering himself for re-election. Seconded by Mr. R. K. Walker, and carried unanimously. Mr. Hockin, in returning thanks, said that he only resigned because he had not time to attend to the regular routine of work properly, but he was quite prepared to do a certain share of work in the future.

4. *Election of office-bearers.*—Proposed by Mr. Hockin, seconded by Mr. deFonblanque, that Mr. R. K. Walker be elected Chairman for the coming year. Carried unanimously. Proposed by Mr. Wright, seconded by Mr. B. Malcolm, that Mr. deFonblanque be elected Honorary Secretary. Carried unanimously. A ballot for the Committee was then held, and the following gentlemen declared elected:—

For Vayitri—Messrs. J. W. Hockin and R. Lamb.
„ Meppadi „ W. Hockin and Romilly.
„ Vellera Mulla—Mr. B. Malcolm.

A vote of thanks to Mr. Romilly for his services as Chairman was passed, and the meeting then resolved into the Monthly General Meeting.

(Signed) G. ROMILLY, *Chairman.*
(„) J. WILLIAMS HOCKIN, *Hon. Secretary.*

GENERAL MONTHLY MEETING.

Mr. R. K. WALKER in the chair.
Mr. DEFONBLANQUE, *Honorary Secretary.*

1. Proceedings of last meeting were taken as read.

2. *Amendment of Rules.*—Resolved that the Committee be requested to revise the rules and submit any amendments they consider necessary for the approval of the general meeting.

3. *Cattle Trespass Act Amendment.*—Read letter from Mr. Powell to the Honorary Secretary complaining that the fines for cattle trespass had not been enhanced in Wynaad as the Association supposed they had. Also letter from the Honorary Secretary to the Collector of Malabar asking that such enhancement of fines might be proclaimed in Wynaad as had been done in the Nilgiri District. Approved.

4. *Roads.*—Read letter from Honorary Secretary to President, District Board, dated December 2nd, 1897. Approved.

The Chairman proposed that the Hon. Secretary be requested to address the Chairman, U. P. A. S. I., asking him to approach Government on the transfer of the Calicut-Ootacamnnd road to the Department of Public Works. Carried unanimously.

The Honorary Secretary was requested to ask the President, Malabar District Board, for copies of road allotments for 1898-99, Wynaad and Calicut Taluqs.

Mr. Hockin resigned his place as Member of the District Board, and Mr. R. K. Walker agreed to allow himself to be nominated for the post.

5. *Revenue Settlement.*—Read letter from Collector of Malabar to Honorary Secretary. Resolved that the following paras. be printed for the information of members:—

Para. 3. If European planters holding lands under native jenmies are willing to send lists of them to the Taluk Office, I will direct the Tahsildar to enter them in a register to be opened for the purpose.

Para. 4. The lists should contain the following particulars:—Survey No. and desam. Extent in acres. Assessment. Name of land. Name of janmi. Name of holder or occupant.

The Honorary Secretary was requested to thank the Collector of Malabar for his acceptance of the Association's suggestion, and to inform him that his orders were being circulated for the information of members.

6. *Poodoopadi Hotel.*—Read Honorary Secretary's letter to the proprietor and letter from Mr. T. J. Ferguson to the Honorary Secretary. The Committee were requested to look into the matter and arrange matters on a proper footing.

7. *General Meetings.*—Resolved that the General Meetings in 1898 be held on the first Wednesdays in the following months: January, February, March, July, September, October, November, December; or 8 in all, unless the Committee think any Extraordinary General Meetings necessary.

8. *U. P. A. S. I. Circulars re* Agricultural Chemist, greenbug and lady-birds, and Mr. Quarme's scheme. Recorded.

9. *Papers on Table.*—Nilgiri Planters' Association Proceedings, 26th November 1897; Government of India Commercial Circulars, No. 11 of 1897, on Bamboos.

(Signed) R. K. WALKER, *Chairman.*
(„) E. DEFONBLANQUE, *Honorary Secretary.*

THE LIGHT THAT CAST NO SHADOW.

CURIOUS stories are told about the powers possessed by certain natives of India, who live up among the Himalaya mountains. These old men, it is said, have devoted scores of years to the study of natural laws and forces, which the rest of the world knows nothing about. Lately a German professor visited the "adepts," as these queer Hindus are called, for the purpose of finding out the secret of their remarkable performances. They treated him rather scurvily, but interested him all the same. One day the professor wanted to examine some ancient Sanskrit manuscripts. An adept went with him to a cave wherein the books were kept. The place was dark as the bottom of a well.

"I can't see to read here," said the visitor.

"Then we will have some light," was the reply, and immediately (the professor says) a soft, pearly light brightened the cave. He could not tell whence it came, but he noticed that it had one strange quality—*it cast not the slightest shadow.*

This is a story hard to believe, yet its truth is affirmed by a man of vast learning and high character, and you who now read it have no reason for doubt except that all the lights *you* have seen have cast shadows. Belief or unbelief commonly runs parallel with one's own experience. Dr. Johnson sniffed at the account of the Lisbon earthquake, yet credited the tale of the Cock Lane ghost.

A man who has been ill for years, and failed to find a cure, is sceptical when friends tell him of a medicine which they believe will make him well. What else but doubt could result from his experience? Take an example:—

"In the spring of 1888," writes our correspondent, "I fell into a low, weak, and languid state. I felt low-spirited and out of sorts. At first my stomach was deranged, my appetite poor, and after eating I had pain and weight at the chest. I was much troubled with wind, and frequently spat up a sour fluid, also bitter bile. Later on I suffered from nervousness and great depression of spirits. I kept up with my work, but had always a sense of discomfort. Off and on I continued in this way for two years, nothing that I took relieving me. At last I heard of Mother Seigel's Syrup, and procured a supply. After I had taken only a few doses I found relief; my food digested, and gradually all nervousness left me. Although I had no reason at first to feel any confidence in this medicine, never having used it or seen it used, I now gladly admit its value, and its power over disease. Since my recovery, for which I thank Mother Seigel's Curative Syrup, I have been in the best of health and spirits. In the interests of suffering humanity, I deem it a duty to send you this testimony. (Signed) D. Griffiths, tailor and outfitter, 151, Hockley Hill, Birmingham, June 8th, 1893."

There is a deal of difference between Mr. Griffiths' candid letter and the story about the light that cast no shadow. The latter may be true enough, but it cannot be verified without more trouble than it is worth. On the other hand we have a trustworthy witness, who will answer letters of inquiry, and can be found at his address.

Finally, there is nothing mystic or magical about Mother Seigel's Curative Syrup. It acts on the theory that most ailments are but symptoms, forms, or phases of that universal disease—indigestion and dyspepsia; it cures that, and throws the light of health and happiness over hearths and homes where illness and pain had cast such dark and terrifying shadows. And that is why people believe all that is told of its success by eager witnesses.

MARKET REPORT.

COFFEE.

Messrs. R. J. Rouse & Co.'s Weekly Coffee Report (January 14, 1898) says:—A quiet tone has prevailed at Public sale this week and the moderate supplies brought forward met a slow demand at barely steady prices.

Nearly 1,300 bags East India were offered and attracted fair competition at about previous values whilst here and there a fine colory lot realised extreme rates.

Columbian, which formed the bulk of the Central American offered, was difficult to dispose of and a large proportion had to be bought in, the rest setting at unchanged to rather easier prices.

Futures after declining 1/- to 1/6 during the first half of the week on larger Brazilian receipts, recovered the last day or two and the market closes about 6d. lower than our last.

Messrs. Wm. Jas. and Hy. Thompson's Report of the Colonial Markets for the Week ending January 12th, 1898, says:—Bank rate 3%. Bombay Exchange closes at 1s. 4 1/16d. Brazil Exchange 6 15/16d. Rupee paper 3½ % 62⅝. Silver 26 9/16d. per oz.

This market has been dull throughout the past week, and closes easier, except for fine and good middling. The better kinds of new crop East India met with a good demand, whilst the pale and grey sorts are difficult of sale, and chiefly bought in. Brazil markets are flat.

According to Messrs. G. Duuring and Zoon, the European stocks on 1st inst. shewed an increase of about 12,050 tons, and the visible supply a decrease of about 4,870 tons, the figures being 170,150 tons and 370,000 tons respectively, against 158,100 tons and 374,870 tons on the 1st December, 1897.

Daily receipts averaged 8,000 bags in Rio and 14,800 bags in Santos.

Futures continue dull and declining, prices at the close being 1s. 3d. to 1s. 9d. per cwt. lower, viz.:—Good average Santos in Havre, March delivery, fcs. 37·50, in Hamburg pf. 30¾, and No. 7 low ordinary Rio in New York $5.65.

To-day's London official quotations are:—

	Jan.	March	May	July	Sept.	Dec., '98.
SANTOS ...	30/3	30/6	30/9	31/–	31/6	32/–

We quote:—

Ceylon, mid. to good mid.	95/@105/	Costa Rica, mid. to fine...	77/ @105/
Do. small to low mid.	75/ „ 93/	Do. ord. to low middling.	53/ „ 76/
East India, mid. to good mid...	80/ „ 90/	Jamaica, good to fine ord.	47/ „ 58/
Do. small to low mid.	65/ „ 79/	Do. greenish to fine colory...	70/ „ 125/
Guatemala, mid. to fine...	75/ „ 100/	African ...	28/ „ 30/
Do. good ord. to low mid...	55/ „ 73/	Columbian, ordinary ...	38/ „ 43/
Salvador, good ord. foxy greenish...	45/ „ 49/	Do. good ord. to low mid...	45/ „ 70/
		Do. mid. to fine...	71/ „ 98/

Receipts in Brazil to 12th January compare as follows with previc years:—

	1897-98. Bags.	1896-97. Bags.	1895-96. Bags.
RIO	2,814,000	2,289,000	1,685,000
SANTOS	4,581,000	3,702,000	2,467,000
	7,395,000	5,991,000	4,152,000

Auctions:—

7 casks and tierces 8 barrels Plantation Ceylon chiefly sold	@ 69/	@ 11
962 bags East India: 25 bags Coorg, new crop ...	„ 64/6	„ 10
962 bags East India: 804 bags Neilgherry, new crop chiefly sold	„ 61/	„ 10
962 bags East India: 133 bags Shevaroy, new crop ...	„ 63/6	„ 9
1,008 bags Costa Rica, chiefly new crop, chiefly sold ...	„ 63/6	„ 9
222 bags Guatemala bought in.			
8 bags Liberian damaged	„ 25/	„ –
98 bags Salvador, part London cleaned, part new crop, chiefly sold	„ 56/	„ –
202 bags Nicaragua	„ 40/	„ 6
563 bags Vera Paz, part London cleaned, chiefly sold.	„ 63/	„ 9
860 bags Mexican bought in.			
14 bags Venezuelan bought in.			
6,268 bags Columbian, part London cleaned, chiefly sold.	„ 42/	„ 8
244 bags Guayaquil bought in.			
27 bags Peruvian bought in.			
301 bags Bahia bought in.			
75 bags Ceara bought in.			
830 barrels 345 bags Jamaica, part London cleaned, chiefly sold	„ 40/6	„ 9
80 packages Mocha bought in.			
On Quay Terms:—			
1,417 bags Santos bought in.			

TEA.

Messrs. Gow, Wilson and Stanton's Indian, Ceylon, and Java Tea Repo dated January 14th, 1898, says:—

QUANTITY BROUGHT TO AUCTION IN LONDON FROM 1ST JUNE TO DATE.

	Indian.	Ceylon.	Java.
1897-1898...	1,018,044 packages.	733,804 packages.	26,053 packag
1896-1897...	1,036,956 „	698,659 „	24,872 „

59,127 *pkgs.* INDIAN
24,372 „ CEYLON
302 „ JAVA
} Total 83,801 packages were offered in pul auction this week.

Duty payments in the United Kingdom and re-exports of Tea are sho in the following table. A considerable quantity was also taken for sh stores, viz. in 1896, 1,175,565 lbs., and in 1895, 1,061,801 lbs.

Movements of Tea in United Kingdom from 1st Jan. to 31st Dec., as shown by Custom House Returns.

	IMPORTS.			HOME CONSUMPTION.			EXPORTS.		
	1897.	1896.	1895.	1897.	1896.	1895.	1897.	1896.	1895.
BRITISH E. INDIES ...	136,221,029	128,799,230	123,363,979	124,534,194	122,941,098	116,343,314	5,496,539	4,306,162	3,973,5
CEYLON	96,807,619	94,650,091	83,447,792	85,493,554	80,294,475	74,023,809	10,502,178	8,242,438	7,147,0
CHINA	28,981,074	35,199,082	40,083,864	17,242,247	19,831,680	26,201,374	19,592,534	19,693,959	18,439,7
OTHER COUNTRIES ...	7,003,760	7,420,388	8,464,493	4,129,783	4,718,256	5,231,640	954,968	1,038,281	991,9
TOTAL lbs. ...	269,013,482	266,068,791	255,360,128	231,399,778	227,785,509	221,800,137	36,546,219	33,280,840	30,552,2

Analysis of above export of Tea from U. K. during the last two years (not including transhipments).

	INDIAN.		CEYLON.		CHINA.		OTHER COUNTRIES.	
	1897.	1896.	1897.	1896.	1897.	1896.	1897.	1896.
COUNTRIES IN EUROPE	2,784,610	1,747,576	6,136,760	4,535,100	11,879,282	10,880,417	721,605	748,7
UNITED STATES	612,574	895,653	1,615,267	1,386,020	2,206,475	1,955,404	55,035	87,9
BRITISH N. AMERICA	1,134,389	886,528	1,538,017	1,346,188	1,686,104	2,364,279	12,442	33,5
OTHER COUNTRIES	964,966	776,405	1,212,134	975,130	3,820,673	4,493,859	165,868	168,1
TOTAL lbs. ...	5,496,539	4,306,162	10,502,178	8,242,438	19,592,534	10,693,959	954,968	1,038,2

PUBLIC SALE OF SOUTH INDIAN TEA.

(AVERAGE FOR ALL INDIA 8·39*d.*) *January 14th.*

GARDEN.	Total.		Average.	Broken Org. Pek. or Flowery Pekoe.		Pekoe and Unassorted.		Broken Pekoe.		Pekoe Souchong.		Broken and Souchong.		Fannings, Dust, and Various.	
	Quantity		Price.	Quantity	Price.	Quantity	Price.	Quantity	Price.	Quantity	Price.	Quantity	Price.	Quantity	Price.
Neilgherry ...	**126 p**		**7·44**												
C ...	64½c		6¼	...	...	64½c	6¼	...	...	...	...	...	...	...	...
Kodanaad ...	62 p		8¼	...	...	24	7¼	38½c	†9½	...	...	...	...	...	...
Travancore ...	**129 p**		**6·12**												
Ashley ...	70		6	...	...	46	5½	24	7¼	...	...	...	...	...	...
Bison Valley ...	59		6¼	...	...	41	5¾	16	7¾	...	...	...	...	2	3½

† = withdrawn.

Stocks of all Tea in U. K. on 31st December, 1897, lbs. 101,869,604; 1896, 103,798,893; 1895, 101,335,543.

Indian. Monday's sale of 43,988 pkgs. was the largest Indian Tea auction ever held in one day in London. The market stood the strain very well and passed without quotable alteration, although here and there, as was to be expected, a few lots sold rather easily, especially amongst medium brokens.

Week's av. of Tea sold on Garden Account, 1898, 44,253 pkgs., av. 8·39d. 1897, 40,471 pkgs., av. 9d.

	1898.		1897.		1st June to date 1898-9.		1st June to date 1897-8	
	Pkgs.	Price.	Pkgs.	Price.	Pkgs.	Price.	Pkgs.	Price.
Assam ...	23,070	9·20	22,505	10	359,318	10·10	352,659	10·05
Cachar & Sylhet...	10,774	6·84	10,303	7¼	192,515	7·04	180,922	7·35
Chittagong ...	289	7·45	248	7½	4,656	7·19	2,537	7·37
Chota Nagpore ...	349	5·40	—	—	1,250	4·99	1,150	4·84
Darjeeling ...	2,679	11·09	1,572	11¾	53,715	11·19	47,863	1/·22
Dooars ...	5,447	7·48	4,233	7¾	86,321	7·66	92,341	7·46
Kangra, &c. ...	728	6·88	365	7¼	6,044	7·35	4,453	7·10
Neilgherry ...	125	7·44	—	—	4,662	7·11	2,613	7
Terai ...	662	6·12	444	8	17,864	7·20	10,547	7·13
Travancore ...	129	6·12	801	7¼	20,904	6·57	18,174	7·09

Total sold on Garden Account 1st June to date 1898, 747,249 pkgs., av. 9·03d. 1897, 713,253 pkgs., av. 9·02d.

Comparative prices of Indian Tea in London:—

		1898.	1897.	1896.	1895.
DUST.	(Fair ordinary, dark liquor) ...	3¾d	4¼d	4¾d	4½d
FANNINGS.	(Red to brown, strong rough liquor) ...	4¼d	4½d	4d	6d
BROKEN TEA.	(Brownish to blackish, strong liquor) ...	6¼d	6¼d	6d	7½d
PEK. SOUG	(Blackish greyish, useful liquor).	6½d	6½d	6½d	8¾d
PEKOE.	(Greyish to blackish, some tip, useful liquor) ...	7½d	8d	7¾d	9¼d
PEK. SOUG.	(Blackish greyish, inferior liquor).	5d	5d	5¼d	7d
PEKOE.	(Blackish greyish, some tip, inferior liquor) ...	5½d	5¾d	5¾d	7¾d

Ceylon. Competition for all grades was strong and prices showed a tendency to harden. The official wire gives exports to the U. K. from 1st January to 31st December as 99,000,000 lbs. against 94,750,000 lbs. in 1896. Average for week 8·13d., against 8d. same period last year.

Ceylon Tea sold on Garden Account 1st January to date 1898, 46,362 pkgs., av. 8·28d. 1897, 49,673 pkgs., av. 8d.

Comparative prices of Ceylon Tea in London:—

		1898.	1897.	1896.	1895.
PEKOE SOUG.	(Ordinary leaf; fair liquor) ...	6½d	6d	6½d	8d
PEKOE	(Ordinary leaf, little twist; fair liquor) ...	7½d	7d	7¾d	9½d
PEKOE SOUG.	(Rather bold leaf; indifferent liquor) ...	4¾d	4¾d	5¼d	7¼d
PEKOE	(Somewhat bold leaf; indifferent liquor) ...	5¾d	5½d	5¾d	7¾d

Java. Only 302 pkgs. were brought forward consisting of Teas of direct import the sale passing without material change. 108 pkgs. "Perbawattee," av. 11d. per lb. 108 pkgs. "Goalpara," av. 9¼d. per lb.

OTHER PRODUCTS.

CAMPHOR (CRUDE).—Quotations of *Japan* by cable have advanced to 95*s.* per cwt., c.i.f. terms for February-March shipment being asked. This is an advance of about 4*s.* per cwt. London holders want 2*s.* more.

CANNABIS INDICA has been advanced from 4*d.* to 5*d.* per lb. for good green on stalk. The stock in London is low (some forty-five or fifty bags), and the advance has been made on advices from India, where the stock is also moderate; but the real reason for the advance is that the Indian holders want more money.

CINCHONA.—The future of the bark is still dubious, but the general feeling is that the Java output will be less this year, and that next week's bark-sales will stiffen prices.

IPECACUANHA is unchanged, but firmly held at our previous quotations.

JALAP.—There is no business to report at the nominal quotation of 6½*d.* per lb.

KOLA NUTS.—At the spice auctions two packages of fair to dark West Indian sold at from 4*d.* to 5*d.* per lb.

QUININE.—There is no visible change to report, although small sales of B. & S. at 1*s.* 1*d.* per oz. have been made by the makers. No more is to be sold at that price. Samples of quinine sulphate manufactured in Java have been received in London. It appears to be a good article, but not quite white, the colour being between that of unbleached sulphate and the B.P. article.

SPICES.—Public sales were resumed on Wednesday, after an interval of four weeks. There was little disposition to do business on the part of the buyers. Cochin *Ginger* was especially dull, only a small proportion selling; 80 bags good plump washed rough realised 24*s.* to 24*s.* 6*d.* per cwt.; 354 bags common small wormy rough, 15*s.* per cwt.; 20 bags dusty cuttings, 12*s.* per cwt.; and 43 cases medium and bold native cut, limed, and slightly wormy 38*s.* 6*d.* to 40*s.* per cwt. Of Jamaican only a few barrels sold at 70*s.* to 72*s.* per cwt. for ordinary lean. Japan ginger was bought in at 14*s.* 6*d.* per cwt.

ZANZIBAR *Cloves* are dearer; 170 bales sold at 3*d.* per lb. for dull, at 3⅛*d.* for fair to good fair; while good realised 3¼*d.* per lb. Privately there has been a good demand on the spot at prices rising from 3*d.* to 3⅛*d.* on the basis of fair. The demand for future delivery has continued, and 3⅛*d.* has been paid for January-March, 3¼*d.* for March-May, and 3 9/32*d.* for April-June. *Nutmegs* and *Mace* are unchanged, and only partly sold at about steady rates.

BLACK *Pepper* steady at 3⅞*d.* per lb. for Singapore on the spot. For arrival 4 1/16*d.* has been paid for January-March shipment. Penang and Lampong were bought in, and 20 bags fine bright heavy Wynaad sold at 4*d.* per lb. Penang was bought in at 6*d.* per lb., and Siam at 7*d.* per lb. For arrival, Singapore has sold at 7¼*d.* to 7 5/16*d.*, and Penang at 6 1/16*d.* to 6¼*d.* per lb., according to position, being rather dearer. *Cinnamon* chips partly sold at 2¾*d.* per lb. for ordinary small dusty.

THE PLANTER

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A WEEKLY JOURNAL

WRITTEN BY PLANTERS FOR PLANTERS.

VOL. III.] COONOOR, SATURDAY, FEBRUARY 12, 1898. [No. 6.

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SUBSCRIPTION.—Advance Rates: Yearly, Fifteen Rupees; Half-yearly, ght Rupees; Quarterly, Five Rupees, and Monthly, Two Rupees, including ostage. Single Copies, Eight Annas.

ADVERTISEMENTS.—From the 1st October, 1897, the charge for ne advertisements will be: 4 as. per line for the first, 3 as. for the second, nd 2 as. for the third and succeeding insertions. Five-line advertisements om Subscribers will be inserted for three issues for one rupee; non-Subscribers will be charged two rupees.

DOMESTIC OCCURRENCE.—The fee for inserting a domestic ccurrence will be *One Rupee* for each insertion, payable in advance.

N.B.—Remittances should be sent to the Manager, "Planting Opinion," splanade Row, Madras.

IMPORTANT NOTICE.

The Business Offices of this paper having now been emoved to Madras, all remittances should be made payble to the Manager of *Planting Opinion*, 3, Esplanade ow, Madras, who will also attend to all advertisements, &c. Letters to the Editor should be addressed to Coonoor, s usual.

SEASON REPORTS.

NOTICE.

TO OUR SEASON REPORTERS.

Please post your next reports to reach Madras on Friday, the 18th February, 1898.

Season Reports should be sent to the Printers, Messrs. ADDISON & Co., direct, and not to *Planting Opinion* Office.

Nilgiris. COONOOR, *9th February.—Weather.*—Clear since last report and still cold, but weather changed yesterday, and to-night it has begun raining smartly, with some thunder. *Crops.*—Coffee not all in yet on high elevation totes, but this rain should hasten them. Prospects generally first-rate for this year. Early blossom thought most probable. *Plant-diseases.*—In abeyance. *General Health.*—Fair. *Labour.*—Ample.

Nellampatty (British). *9th February.—Weather.*—Hot weather has set in, but the last two or three mornings looked very like rain. It is to be hoped none will fall, however, as it would probably mean another bad year, while at present the prospects for next year's crops are decidedly good. Outturns have been rather better this year, and some people attribute this to the new seamless bags being used. *General Health.*—Fair: a little fever among Europeans, but nothing very serious yet. *Labour.*—A number of places have paid off, and more do so this week.

Coorg. POLLI BETTA, *7th February.—Weather.*—After a long absence clouds put in an appearance yesterday, and to-day they gathered in force, and during one part of the day the sky was almost entirely obscured and it looked ominously threatening. Rain now, of course, is very much to be deprecated. *Crops.*—Stripping not all completed yet. Gleaning in progress. Prospects for coming season most encouraging. Old wood bursting with spike. Trees mean to crop if only given a fair chance. Pruning being pushed on with. *General Health.*—Much improved. *Interesting Item.*—Silver cup, value Rs.50, presented by Captain Lambert to "B" Company for best shot at annual course up to 600 yards.

THE MANURING OF ESTATES.

IN the present rudimentary state of planting science, we can conceive nothing that would benefit the industry more in return for the cost than a small travelling committee to collect trustworthy evidence on the comparative results of the different systems of manuring in vogue. Two or three men of known ability and integrity would suffice, and in the course of three months or so they would probably have had time to visit most of the planting districts of South India. It may be said that by issuing circulars, we could ourselves obtain the information desired. We could get it in part, it is true, but the most important half of the information, *i.e.*, the actual results obtained, would be sadly lacking both in quantity and quality. There are very few proprietors or managers who care to furnish details of yield in answer to a journalistic enquiry. Moreover, in the course of conversation, they would be a great deal more likely to supply interesting and valuable details of information than were they required to put it all down on paper.

But we anticipate. Before debating the advisability of a travelling committee in preference to circulars, we should have demonstrated the necessity of holding such an enquiry at all.

Lovers of ancient routine will object to the scheme altogether: for they say with sublime confidence that every man knows the methods of manuring that best suit his estate. Luckily for the prosperity of the community, each year sees the number of these worthy men decrease. We shall not lose time in attempting to convince them, for it would be a waste of space. No discourtesy is meant hereby, for it is a physiological fact that the human mind is incapable of receiving fresh impressions after a certain period. There are, however, another section of objectors. These maintain that it is no good travelling outside your own district, and that in it any man can easily obtain the comparative information he needs. Both of these objections we must negative. The differences in soil and climate between the various planting districts are not so great as to render experience gained, say in Coorg, useless when applied to a Nilgiri or Travancore estate. As a matter of fact, for the purposes of planting they should all be regarded as one district, though bearing in mind their differences sufficiently. The second objection seems a sound one, if one forgets how very little distant neighbours see of each other, though in the same district. Moreover, such inspection, while of undoubted utility, would not be nearly so complete as that instituted by the proposed committee.

To point our remarks, we will cite two cases known to us. Two of the crack estates of a certain district, separated from each other only by a few miles, have gradually differed in their working until the principles adopted are almost contradictory. One estate, after long and careful trials, has come to the conclusion that nothing can beat good cattle-manure. Good cattle-manure not being obtainable by purchase, and grazing being out of the question, the estate cattle are wholly stall-fed, guinea-grass and oil-cakes being their principal food. The other estate has on the contrary, after at least as careful trials, entirely given up the use of cattle-manure, and relies altogether on the aid of artificials and chemicals.

The work of our committee in these two cases would not err on the side of simplicity. Exposure, quality of the soil and subsoil, rainfall, cost of working on both the estat and, lastly, crops for a series of years, should be carefu compared. It is by no means necessary that every est in each district should be visited ; some half-dozen, or doz representative ones would suffice for the purpose.

After all, leaf-disease or no leaf-disease, *the* great questi is to ascertain the results of varying treatment in cro We make bold to say that on the best estates through South India will be found lines of resemblance in the s and methods of manuring and cultivation that will give clue to the great latter-day puzzle : how to get crops, a how to go on getting them.

The first step in organising a science is to coll sufficient data, then to arrange them in succinct order. T next is to deduce therefrom general laws governing facts observed, which laws are again tested by the light actual experience. Planting data are available in gr number : they require collecting and arrangement. Su a task can only be satisfactorily accomplished by mea similiar to the one we have proposed, *i.e.*, by forming small working committee to travel round and inspect chief estates of Southern India.

NOTES.

American Tea Market Fund. The contributions promised this fund amount to Rs.1,02,0 being Rs.1,635 below last yea levy, but this does not include the sum of £200 cont buted by the Assam Company in London.

The Belgian tea duty. The abolition of the duty on in Belgium will tend to an increa continental consumption of this article. The geographi position of the country is admirably suited to the establi ment therein of large *entrepôts*, from which the neighbo ing estates can be easily and quickly supplied.

India-rubber in Australia. Australia is beginning to wake to the possibilities of its sub-tropi and tropical zones. Coffee is obta ing a firm footing in Queensland, and now systematic effo are being made to introduce rubber cultivation in Northern Territory of South Australia. Arrangements being made by the local Government for the planting half a million acres.

Tea: bulking of same marks. The following regulations, affo ing further facilities for the bu ing of Indian and Ceylon tea, to be brought into effect in the port of London on representation of the Indian Tea Association.

"(1) Parcels of Indian and Ceylon tea bearing the sa garden mark, but imported by different ships, may bulked together for home consumption, exportation or shi stores.

"(2) On request to the surveyor at the station at wh any tea proposed to be dealt with under this order is to warehoused, the bringing to account of the first and sub quent consignments may be deferred until all the packa have arrived, provided that no packages remain in wa house for more than two months, from the date of the shi report, without being weighed and brought into accou

The Papaiya for planters.

Says our pushing contemporary, the *Produce World* :—" A source of income to which we would draw the ttention of planters is Papia juice. The Papia (otherwise 'apaw) tree is of quick growth, and thrives wonderfully hroughout the tropics. It needs practically no cultivation, nd its richness in pepsine is too well known to need re-apitulation. The pepsine derived from this fruit is the oundation of most medicines for curing digestive derange-ients, and is now quoted at 5*s.* per lb. It is easily prepared, nd we should advise its inclusion amongst shade trees on ll estates where coolie labour is used. The unripe fruit as to be scarred or lined some quarter inch deep, with a harp knife daily, and the juice caught and dried upon heets of glass, when it becomes at once a marketable ommodity. The *Chemist and Druggist* gives the following ethod of preparing it :—'The juice is pressed out of the ruit, clarified by filtration through a twill bag, and the erment precipitated by alcohol. It is then dried, but is ometimes purified by treatment with water.'"

Camphor shade.

As a matter of fact, we do not think that camphor would do extra vell for shade, though if used in belts for protection against old winds, its somewhat dense foliage would be of value. t should be tried though, at least, for from its leaves that ost valuable of all products, camphor, can be distilled from he fourth year. We believe plants can be obtained from he Curator of the Ooty Botanical Gardens. Its culture is eing tried in Florida with encouraging results. At present ve are dependent upon Japan and the Phillippines for amphor, and since the rebellion in the latter islands, the rug has gone up considerably. In Japan camphor is one f the noblest trees of the forest, and its timber fetches a ood price for various purposes. At any rate whoever vishes to undertake the cultivation of camphor had better egin soon, for the number of places where the tree thrives s legion. Egypt, the Canaries, South-East France, Buenos yres, California and Madagascar are all countries where amphor thrives. In Japan the trees withstand the frosty ights of winter, and a minimum temperature of 12° F. n Australia, too, camphor grows very freely. The increased emand for camphor for use in explosives and in the manu-acture of celluloid gives greater importance than ever to his commodity. The Japanese have commenced to prepare t by distilling the leaves and branches of the trees instead f destroying only full-grown trees for the purpose.

The value of forest fires.

According to Dr. Bell, in the *Scottish Geographical Magazine*, the orest fires of Canada are generally caused by lightning. n the great forest between Alaska and the Straits of Bellisle, the portions recently burned are easily recognised y the tenderer green of their foliage from the parts which ave been longer spared. The fire rushes along with the peed of a galloping horse. The branches and dead leaves n the ground burn like tinder, and the flames rise to near-y 200 feet. Resinous pine-woods burn fastest. One of them xtended 160 miles in ten hours. The traces of a fire emain for nearly a century. Birds and beasts are stifled or urned. Beavers and muskrats, which are amphibious, ave a chance of saving their lives.

After the fire a few trunks of the largest trees are left. Next spring roots begin to sprout, and seeds to grow. In 15 or 20 years the soil is covered with poplars, willows, &c., which shelter young firs and other trees. In 50 years the conifers are uppermost, and in 100 the others are dying out beneath the pinewood. A third of the forest region of Alaska has trees of 50 years' old, another third trees of 50 to 100 years, and the rest trees over 100 years' old. The fire seems to suit the Banksian pine, as it opens the pines and sets free the grains. Without fires this species would hardly reproduce itself. Such fires took place even in the Pleistocene epoch of geology.

Forests and rainfall.

It is well established that forests tend to preserve the rainfall of a district. They permit what Americans call a "seepage" of water to the source of springs, and also retain the snow or rain that falls, thus preventing dangerous floods and freshes. It is not settled, however, whether they tend to promote snow or rainfall. There are plenty of historical statements which might be taken to show that they do; but the evidence is doubtful. Dense forests are usually found with abundant rains, but the rains there probably caused the forests. Meteorologists are agreed that no important changes of climate have occurred since the dawn of history. Plants found in mummy cases in Egypt are such as grow in the land to-day. The "early and the later" rains of Palestine still continue, and the Jordan overflows in February now as it did in the days of Joshua. Statistics show that rainfall in New England is much what it was before the country was denuded of its virgin forest. According to Professor Hazen, the well-known American meteorologist, in an address to the American Forestry Association at Nashville, Tennessee, observations made on the rainfall of forests and cultivated ground in France and Germany show that the difference between them is almost, if not quite, inappreciable. Professor Blandford found that a forest tended to give 2 per cent. more rainfall than open ground, and that is regarded by Professor Hazen as inappreciable, since it only means one inch more of rainfall on 50 inches in the year. It is observable that heavy clouds drifting over a plain sometimes precipitate over a forest, and that moisture often hangs above a wood.

The tea market.

Indians.—Of the 58,672 packages catalogued for public sale this week, says the *P. M. Review* of 15th January, about 44,000 were submitted to auction on Monday, the largest number recorded in a single day. To deal sufficiently with this quantity necessitated the tasting and valuing of a thousand samples, and this could have been satisfactorily accomplished had the samples been obtainable at the bonded warehouses when the catalogues were issued. This, however, with few exceptions, was not the case, and prompt steps should be taken to bring the matter under the notice of the merchants, who are, or ought to be, principally interested in the subject. It was arranged some time ago, and partially carried out, that each catalogue when issued should have printed on it, "These teas are ready for sampling"—an arrangement which, if properly carried out, would be a convenience to the trade, as the teas would, in that case, receive more careful attention, and both labour and expense would be saved. The market, on the whole, has been steady considering the quantity offered, which is attributable to the improved

demand, and the more general disposition shown by buyers to replenish their stocks from the excellent value of many of the teas now available. The only descriptions showing irregularity were the poor liquoring low and medium sorts, which have favoured buyers. These bid fair to be ample to meet requirements, but for the more useful teas of the same grades it is not at all improbable there will be a firmer market later on. The better kinds are not too plentiful and have fetched quite former prices, while the finest sorts are in comparatively limited supply, and have sold at hardening rates.

Tea-sweepings: nett weighment & bulking.

The Managing Director of the Assam Company has written to the Indian T. A. as follows :—

"I am much of opinion that the large quantity of tea-sweepings now imported tends to lower the value of dust, and looking to the fact that we can now obtain no more than 2*d.* per lb. for sweepings, leaving us certainly not more than 1*d.* per lb. net, it is pretty clear to me that if all growers would cease shipping this stuff, we should be the gainers, inasmuch as there is a good demand for theine, and if the manufacturers cannot get our cheap rubbish, they must come to the market and compete for dust.

" Please consider this, and see if you can get the views of other shippers."

After some discussion, the Secretary was instructed to write to the London Secretary, and request him to forward particulars as to the demand in London for dust and the amount of dust and sweepings respectively imported.

In his letter of 3rd December, the London Secretary stated that his Committee had tried in the past to introduce a reform in the system of net weighment, but their efforts had not been rewarded by any permanent improvement in the system of weighing tea in the warehouses. They would, however, give due consideration to the question again, in view of the expression of opinion entertained by the General Committee.

He also stated that a meeting of members had taken place, and in consequence of the views expressed by those present, the following resolution was passed unanimously, *viz.*, "That the Association regrets that it does not at present see its way to induce members to conform to any general rule in the matter of printing the place of bulking, and that members be left to act as their interests may suggest."

Jamaican cacao.

Considerable surprise, says an exchange, has been caused in Jamaican trade circles by the English Government sending a telegram inviting tenders for the supply of West Indian cocoa. The incident is regarded as unparalleled in West Indian affairs, and it is expected to have a favourable effect upon cocoas from those regions as against Guayaquil cocoa. The general opinion is that, owing to the stringency of the markets, the Government believes cocoa may be bought more cheaply by tender than through ordinary channels. It is possible, however, that the motive may have been, also, to give practical help to the West Indies in view of the late Sugar Commission's report. As to whether Jamaican planters are fully prepared to take advantage of this opportunity we leave our readers to judge from the accompanying figures. In 1896 the cocoa crop in Trinidad was valued at £452,000, and that was considered to be a short crop in Trinidad. As a West Indian cocoa producing colony the next in importance is Grenada, and in 1895 the crop was valued at £138,000, but that was an unusually year, for in 1893 the crop reached the figure of £281,(In Jamaica, the cocoa crop of 1896 only reached the sur £17,528. Or put it another way. Whereas in 1887 export of cocoa from Trinidad was valued at a quarter (million sterling, it increased to £620,000 in 1895. In 1 the Jamaica cocoa crop was worth £10,000; last year it only advanced to £17,000 So while the cultivation cocoa in Trinidad had increased to nearly three times first quantity mentioned, and that notwithstanding depression of prices, the export of cocoa from Jamaica not doubled as compared from 1885 to 1896. Jamaic had better recall to mind the proverb about putting their eggs into one basket.

Tea-thirst in New Zealand.

In a special description of she shearing in New Zealand—with hands employed on a Canterb station—published in the *Globe*, the following appe regarding the day's refreshment and hours for resti We may remark by the way that the non-advance Indian teas in Australasia must be a great deal due to fact that "billy-tea" is always boiled. Indian tea is strong for such awful treatment :—

"At 5 o'clock, the great ten-gallon boiler, commo called "Big Ben," is steaming on the log fire, preparat to the men's tea at 6 o'clock; into this "shearer's tea-po as the cook calls it, nearly 1 lb. of dry tea is thrown. 30 lb. seed-cake has just been taken out of the oven. men's evening meal consists chiefly of meat and bread butter. Their meals and refreshments throughout the are as follows: A pint of tea and a piece of cake at 5 o'cl in the morning, before beginning the day's work; breakf at 7 o'clock, consisting of mutton chops, bread and but and tea; the first "Smoke-oh" at 9 o'clock, when interval of 20 minutes is allowed for rest, for sharpen the shears, for smoking and for the consumption of anot pint of tea; dinner at 12 o'clock, consisting of joints mutton, about twelve in number, potatoes, bread, currant or other pudding, and tea again: the sec "Smoke-oh" with tea at 2-30; the third "Smoke-o with tea and cake at 4 o'clock; and finally the even meal at 6 o'clock, already mentioned, after which no m work is done. The daily consumption of some of the ite of food at the shed amounts to 60 gallons of tea, to m which from 4 to 5 lb. of dry tea are used; two dozen 6 l loaves of bread, and nearly four sheep (that is to say, per week), 40 lbs. of sugar, and from 45 to 50 lbs. of ca So the men do not starve; nor should they, for their w is arduous and requires endurance and skill.

The coffee market.

A note in an exchange sta that fine Plantation Ceylon has lat realised extraordinary prices, peaberry selling up to 151

Although by the publication of the stocks last Saturd says the *P. M. Review* of 15th ultimo, the world's visi supply was shown to have decreased during December 4,870 tons, owing mainly to a falling off in the Brazil receipts; the latter have since been again heavy, and, consequence, a flat tone has been apparent in the termi market until yesterday, when quotations recovered to level of last week. At auction there has been a dull t for all except medium and fine qualities, though prices

ot very materially lower. A further small shipment of osta Rica sold at a considerable advance upon the previous ts of the same mark, and only slightly below the prices btained for the early shipments of last year, but with a etter supply lower rates may again be looked for. East ndia has maintained its value, though there is little demand t present from the home trade for this description.

LONDON COFFEE RETURNS.

—	HOME CONSUMPTION.		EXPORT.		STOCK.	
	1898	1897	1898	1897	1898	1897
For the week ended Jan. 8, 1898.	Tons. 297	Tons. 295	Tons. 296	Tons. 208	Tons. 10,008	Tons. 8,425
	—	—	—	—	—	—

OFFICIAL STATISTICS OF THE COFFEE TRADE OF THE UNITED KINGDOM.

	1 Month ended Dec. 31.			12 Months ended Dec. 31		
	1895	1896	1897	1895	1896	1897
mports ...	43,693	53,886	50,971	774,409	713,589	778,953
Home Consumption.	17,612	18,420	19,264	249,641	248,042	248,498
Exports ...	15,348	16,071	23,850	439,763	443,742	445,656
Total Deliveries ...	32,960	34,491	43,114	689,404	691,784	694,154
Stock on Dec. 31 ...	161,463	157,482	218,815	...	...	...

LETTERS TO THE EDITOR.

EXPERIMENTAL PRODUCTS.

SIR,—I wish to get some black pepper corn for planting, also a couple of thousand sandalwood seeds. Can you oblige me by finding out where to procure the above seeds, and also the method to plant them? Some of your many contributors may very kindly help a fellow-labourer in this field. Does pepper creeper require shade? And will mohwa trees answer the purpose? I mean, can I have the pepper creeper run up mohwa trees without injury to both?

I have got some 2,000 acres of land and wish to stock it with useful plants. Can you suggest any useful and remunerative and quick-growing plants? I shall feel extremely obliged.

SAIFABAD, HYDERABAD, DECCAN,
30*th January*, 1898. } MIRZA MEHD KHAN.

COFFEE SHADE TREE.

Sun-dried Erythrina Lithosperma loppings, &c., contain per ton:—

61·50 lbs. Nitrogen.
57·38 „ Potash.
14·92 „ Lime.
13·68 „ Phosphoric Acid.

Seed cured under Messrs. Sutton and Sons' advice.

Orders should be booked early for the coming crop of seed from the parent trees of above analysis at Rs.6 per pound containing about 2,000 seeds. *Germination guaranteed.*

Only thornless variety extant, and is not procurable anywhere save from the

MANAGER, ARIENKOW ESTATE,
Shencottah.

P.S.—Will you kindly let me have the name and address of the native gentleman who wrote on Arrowroot in No. 31, Vol. II, of October 30th, 1897, of *Planting Opinion?*

[For the seed required, apply Curator of Lal Bagh, Bangalore. Details of rainfall and water-supply generally, together with class of soil, are necessary before advising experimental products. We have mislaid the address required. Perhaps if the writer of the article comes across this query, he will reply direct.—ED.]

MR. QUARME AND HIS LEAF-DISEASE CURE.

SIR,—I have, as you are aware, declined to make any reference to my proved system for restoring fertility to the coffee tree, and the removal of its necessary adjunct leaf-disease, since the matter is *sub-judice* between a certain body of planters and myself.

As the writer in your issue of the 22nd January last (1898) has made an undeniable reference to me in "Planting Dialogues," I quote it. "You are ready, some of you, to try hair-brained patent schemes of curing the disease evolved by the fanciful imagination of retired planters." I am not aware of any other "retired planter" who has proved the cause of leaf disease.* I have, through the good offices of the U. P. A. S. I., been in communication with I suppose all the Associations.

It is certainly a mean underhand way of attack, and as it is damaging to my interests, his false insinuations, since it is now under consideration, I shall require him to publish in your journal an apology for so groundless statements, for he cannot possibly know my system since the gentlemen composing the "Confidential Committee" signed a deed to be secret in every way.

To give the fullest contradiction to this inference that it was "evolved from the fanciful imagination of planters long out of touch with latter-day planting conditions," I state that in 1872 and for five years after, I experimented on the coffee tree, making notes on them. In 1877 I wrote a memorandum and left planting in 1880. When at home, I gave it to my two friends, the late James Gordon, of Messrs. Boyd and Co., and T. J. Ferguson, of Hinde and Co., now of Messrs. Burnett and Son, Calicut. The former thought well of it, the latter expressed no opinion, but advised my taking up Gold Assaying Metallurgy, &c., which I promptly did.

I paid dearly for the success of my system, for in the crop of 1877-78, I got a "bumper crop" on the plan I based; and as there was a clause in the lease protecting leasor from having his trees "sweated," it put an end to my lease, he getting this bumper crop. This is known on the Shevaroys to planters of the seventies.

I read every planting publication, but am ignorant of any change of method since 1880. I do know that the average crop of South India produced is under one cwt. per acre.†

CALCUTTA,
31*st January* 1898. } E. A. QUARME.

* [We know of more than one who allege to have made this discovery.—ED.]
† Not under European management.

GENERAL ARTICLES.

PLANTING DIALOGUES.

II.

GREEN wasn't well pleased, I am sorry to say, when the last "Dialogue" appeared in print. The notions he holds in the righteousness of his cause are sufficiently confused in conversation. In print they are too obvious. His boss was hugely delighted, and chaffs me as being Green's friend with having roasted my pal badly. I say nothing, and bet on the winning horse. Besides, for my part—but there, it's for the public to judge, not me.

Jack Bentley it was who started the game this time. We had all been round a couple of well-known gardens in the neighbourhood, and, before tubbing, shop—diluted with pegs and smokes—was the order of the evening.

"Funny thing, you fellows," began Jack, "but we haven't heard Green's tongue for a long time. What is the matter, my boy, didn't you like the look of that coffee we saw on 'Wood' Estate?" alluding to some such stuff that had been dosed chemically out of its skin.

Green replied that on the contrary he liked the look of it very much. For it proved what he had so often urged before.

"That chemicals do good to coffee?" smiled Bentley.

"No. That some planters haven't the least idea how to use chemicals. And very few how to use what you call artificials either."

"And how would *you* use them, then?"

"That is not precisely the point. Why do you prefer cattle manure to any other manure?"

"Why do I prefer cattle manure? 'Cos it's the best going. Your pet scientists declare it's the only perfect manure known, as it contains everything the plant wants. It's bulky too, and lasts a long while. Now your chemicals and artificials act like stimulants, the effect is over at once almost. *That's* why I like cattle manure, my boy!"

"Exactly so. And as you are unable to procure all you need, you are forced, though unwillingly, to fall back on a substitute. Your ideal substitute would be that fertilizer which would resemble cattle the most nearly. You must admit that chemicals and artificials can supply, if a requisite number are used, all that is contained in cattle-dung, except, perhaps, humus."

Here another arrival interrupted what we thought was to be a discussion on the old, old subject of cattle-dung *versus* artificials.

Bob Trent was a 'twixt-and-between man, and staked his whole belief in artificials, with strong reservations on the subject of agricultural chemistry.

"That's right, Green, give it to Bentley as hot as you like. I'll back you up. What were you saying just now?"

"Talking about making a perfect imitation of cattle manure. Let's hear him out."

So Green proceeded. He saw I was on the look out and chose his words.

"A great difficulty in some estates would be to procure the humus. This could be overcome by the careful preservation of weeds, loppings from shade trees, and any green jungle-growth near. To ensure its decay, it should be stored in pits and kept moist. When in the 'cuts-like-butter' stage, which may be hastened by adding certain chemicals to quicken fermentation, it's ready for the next operation. This is simply the addition of chemicals or artificials in such proportions to make it accurately resemble cattle-dung, poonac or nitrates in small quantities for the soluble nitrates in dung, and tannery refuse or more waste for the slowly-decomposing nitrogen in the solid portions of the cattle manure. Phosphates, potash, lime and the other minerals can be added as easily."

"Yes, but how about the cost, and what are the proportions of chemicals and so on, can you tell me that?" exclaimed Bentley.

"No, I certainly cannot, offhand. *That* is the work of an agricultural chemist. I should imagine that the cost would not be more than cattle manure. I am not dee interested in that point, for I think if we could effect same result on the field, it would be cheaper and better every way."

"Bother cattle manure. I've given it up long ago. W the thing is as simple as it can be. Coffee needs so m pounds of nitrogen, so many of phosphoric acid, and so You apply them, and there you are!"

"I cannot believe it so simple as you say, Trent. instance, what is your theoretical dose of manure, I me how much ought you to get in crop, on theory alone?

"Oh, the usual seven cwt., I suppose. But no expects *that* nowadays, with leaf disease and all."

"So a good deal goes to waste then. Does anyone kn why?"

"Of course. It's all the fault of leaf-disease. It's regularly into their constitution, I mean, the *effects* of disease are shown in every seedling. They don't get a show to start with," rejoined Trent.

"I see. You hold that the plant is unable, throu inherent weakness, to take up all the food given it. appears to be a way of shifting responsibility on to plant's shoulders instead of your own, where, allow me remark, it ought to rest."

Trent was inclined to be riled at this, but kept silent.

Green continued:

"I know you think it cheek of me, a two-year planter talk in this way. Have patience a while. You know t coffee wants certain quantities of certain elements. have you found out in what shape the plant prefers the Let us take nitrogen as an example. It can be given many different soluble and insoluble forms. Confin ourselves to the first, nitrogen can be given in the fo of salts of ammonia, nitrate of soda, of potash, lime, That is, pure chemical form. If you use oil-cakes on other hand, the nitrogen is rendered soluble by fermentati and changed by the action of bacteria into nitrates of so Speaking broadly, nitrates are the only form of nitrog that plants can take up as food."

"That's all right. You aren't getting much 'forrade though," rejoined Trent.

"Well, it is fairly obvious that, *unless* the conditions the soil are such as to allow the bacteria to perform th work efficiently, a great deal of the poonac you use must wasted. The writer of those papers on 'Soluble Nitrog and Leaf Disease' in the *Planting Opinion* goes s further than this. Even if you apply ready-formed nitrat you run the danger of their being destroyed or made usel if the soil conditions are unfavourable. I know you sc the idea of 'wasting' money on agricultural chemist but let me ask you a plain question. If you admit proven the statement that soil conditions command in large degree the fertility of a soil—and any primer agricultural chemistry will bear me out,—how can y know what to do without expert assistance?"

Trent remained silent.

"Don't you see what I mean? I mean that you a almost every other planter in South India, and in Ass and Ceylon, too, are just wasting a tremendous lot money every year, throwing it away blindly. Can y afford it with our wretched crops and dropping prices? one of the last numbers of *Planting Opinion*, there w an article on superphosphates. It gave a good instance

ow ignorance could cause a grave loss. Ignorance is navoidable, but when nothing is done to remove it, it is erily unpardonable!" Green sat down with a flushed ce, for he had risen in the excitement of the moment.

Bob Trent looked unconvinced and said so. Bentley was rofoundly uninterested, as were most of the others.

"No go, Green. It's clear science wasn't meant for lanters. You'ld better get into your tub" quoth one of ne creepers.

FERTILIZATION OF THE COFFEE FLOWER.

II.

With one or two new species of coffee at one's disposal, nd a like number of distinctly marked varieties, such as ne "Maragogipe," which is an introduced variety (from Brazil) of *Coffea arabica*, an experimental plot could be tarted on the following lines:—

(*a*) Situation, as regards aspect, soil, water and shade, o be the best the estate can afford. Occasional irrigation vill possibly be required to induce the different bushes to lossom together, so that the possession of a perennial vater-supply would be a convenience.

(*b*) The crossing-plot need not exceed one-eighth or at reatest one-fourth of an acre in extent, while it is possible hat equal results may be obtained by working systematic-lly on a few bushes.

(*c*) In planting up the crossing-plot, an equal number f healthy seedlings of the estate coffee should be thoroughly nixed with the new kinds, so that winged insects may ave full play on the whole. But in addition to the eneral and haphazard operations performed by the in-ects, a few bushes should be carefully isolated for hand-ertilization. For the latter purpose a few skeleton frames overed with fine muslin would be a sufficient protection, if laced over the bushes before the flowers opened. Plant n a square plot at 6 × 6 feet, so that air may circulate round the bushes freely. The preliminary details which have emphasised under the sub-headings *a*, *b* and *c* will eep the planter employed for at least two years, or, to be trictly accurate, until a maiden crop of flowers is produced n the crossing-plot. Then, at this latter stage, the work f fertilization will actually begin, should several distinct kinds of coffee flower simultaneously. Unprotected bushes will be pollinated through the agency of insects chiefly, while the protected ones will be self-pollinated, should no precautions be taken to prevent it. Where bushes are intended for hand-fertilization, it will be necessary in the early stages of reproductive growth to rub off a great many of the young flower buds, so that the inflorescence of an individual may be reduced to a manageable number of flowers. For that matter, the flowers could be reduced to what is borne on a single primary, or to a few clusters of the same. The necessity for this apparently ruthless treatment is contained in the fact that, during the short time the stigma is receptive of foreign pollen, the fertilizer could only pollinate a limited number of flowers with any degree of certainty. It is, therefore, wiser to make sure of getting a few good crosses than to attempt a larger number indiscriminately.

Let us now suppose that the operation is about to take place. Having provided himself with the marginally-noted requisites, and selected a protected bush to become the seed-bearer, the fertilizer places himself under the protective frame and eagerly watches for the opening of the first flower. Directly the flower opens (usually early in the morning), there will be seen, slightly projecting from its delicate white throat (tube of the corolla), a bifid or two-horned stigma supported by 5—7 arrow-headed anthers on short stalks. At the time of opening, the stigma, which is seen well in advance of the anthers, glistens with a sticky substance which holds fast any powdery matter, such as pollen, that may fall on to it. What the fertilizer has to do at this stage is to dust a little foreign pollen on to it by means of his camel's-hair brush. This done, he instantly, and as deftly as possible, cuts away the 5—7 anthers behind the stigma. But as the anthers are usually closed at this early period, they could perhaps do no harm if they were left. Everything would depend on the behaviour, so to speak, of the stigma towards the new pollen by which it has been fertilized.

A fine camel's-hair brush; small, sharp penknife; small, sharp pair of scissors; pocket lens; flowering branch from male parent, with pollen.

The process as described above has to be done with every flower until the primary or clusters of flowers reserved for crossing have been exhausted. A register is then made of the parentage on both sides, and after a day or two the bush is liberated from its protecting covering.

I have examined many coffee flowers at the moment of opening; in most cases the stigma projects in advance of the anthers and the style lengthens rapidly. By this means the spreading horns of the stigma afford a good platform for small bees and other insects to rest upon when searching for honey. Then flitting from one stigma to another they deposit quantities of pollen which readily adheres to their hairy limbs.

J. C.

The Wynaad and the Planting Industry of Southern India, by Francis Ford, Re. 1.

The Planting Directory of South India, Re. 1-8.

Tea Planting from Seed to Cup in Tamil, with English Translation. Re. 1.

Sketch History of the Planting History of Wynaad, by the late Adolphus Arthur Wright. Re. 1-8.

Science and Coffee, by the late Mr. Wm. Pringle, m.s.c.i., Re. 1-8.

Report of Observations of Injurious Insects and common Crop Pests during the year 1883, with methods of Prevention and Remedy, by Miss Eleanor A. Ormerod, F.R.Met.Soc., &c., Re. 1-8.

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LIBERIAN COFFEE IN THE STRAITS.

INTELLIGENT planters always take an interest in the methods of cultivation of coffee adopted in other countries, especially where the results, in crops at least, are so excellent as those obtained in the Straits. We purpose, therefore, reprinting the most interesting of a series of articles on Liberian coffee, originally published in the *Selangor Journal*:—

FELLING, BURNING, LINING, HOLING, FILLING.

If you can make a contract to burn and clear with the men who fell your jungle, you will save yourself a good deal of money and much time. If the contractor has to clear and burn the jungle, he will be more careful in felling it; he will first clear all the undergrowth, then cut all the branches of the big trees which have been felled and heap them on to the main trunks of the trees—this, done properly, will save him a lot of time and trouble afterwards when he wants to burn it. If he has only contracted to fell your jungle, you must watch very closely that he does all the above, otherwise, you may be snre, he will simply cut the big trees and never trouble himself about anything else. He will also cut the trees as high as possible above the ground, as the trunk is not so thick higher up as lower down ; you should, therefore, stipulate that all trees should be cut not higher than six feet from the ground, otherwise refuse to accept the work or to pay for it. If the above is not regarded, you will have no end of trouble in cutting the small stuff afterwards and heaping it on to big trees : every inch of ground you will have to recovered with axe and parang, and day after day your men will be hard at work at it—yet you will see hardly any progress. Many young planters will not thoroughly dry, but too soon give the order to set fire to it. If this should be the case, they will be very sorry for it afterwards.

Here, again, the coolies will attempt to impose on the inexperience of their young master, and will want him to pay a few dollars for matches and torches. If he tries it himself, he will soon find out that a box of matches does not go far in setting a jungle on fire. But don't pay a cent! There are any amount of bertam trees in the jungle, and a few branches tied together will give the best possible torch for the purpose.

If your wood is properly dry you will have a good burn and will be able to proceed at once with lining and holing, but if you have been too hasty in setting fire to it, or if you have neglected to see that the jungle was properly cut and the wood properly heaped on, you will have to work a few weeks, or perhaps a few months, after the burn to clear the ground of the remaining wood.

Of course it will all rot away in a few years, and probably in five years it would disappear by itself; but in the meantime it will be in the way of your drains and your roads ; and, what is still worse, it will be an attraction for white ants, who, after they have finished all the old wood, will be obliged to starve or to eat your nice coffee trees, and, you bet, if they have to choose between the two, they prefer the coffee trees.

Lining.—I think it is now generally recognised amongst planters in Selangor that the proper distance for Liberian coffee trees is 10 ft. by 10 ft. Some planters think it unnecessary to line their clearing regularly in every direction and think that it is quite sufficient if the lining is done in one direction only. No doubt the trees will grow just as well in one direction as in the other, and, as far as that is concerned, you need not line them at all, but plant in every direction—as long as they are only sufficiently apart from each other. But to every good planter this would be at once a sign of bad and careless management; bad lining will remain an eyesore for ever, good lining a credit to the estate and its manager and a source of continual pleasure and satisfaction to the planter. It will show the coolies ot once that you insist on order and systematic working, and it will make them careful in the execution of their own work too. Good and regular lining facilitates the control of your work, makes it easy to approach every tree and easy to overlook the plantation and to detect the slightest irregularity. Most of the planters use small wooden pegs for lining. I do not see the advantage of this; they cost more than *anakkayu* (sticks) and cannot so easily detect any irregularity as you can with sticks a 4 to 5 ft. long. A man will cut 150 to 200 of such sticks in jungle as a fair day's task. The lining is done with a rope ma every 10 feet with a piece of coloured cloth. Two men get ho this rope, one at each end, and other coolies walk along the and push a stick into the ground at every 10 ft.; one line b finished, the two end men, who each have a stick 10 feet in len measure the distance to the next row and put an *anakkayu* in ground in the exact continuation of the direction of the former li and then the other coolies again walk along the rope and put d the other sticks, and thus the same process is repeated with next line and so on. The sticks can always be used again.

Holing.—Before you plant out your young coffee trees, i necessary to prepare the ground for their reception. The gro being lined, you can start at once with holing. The holes sh be 2 ft. square and 2 ft. deep. It does not matter so much if t are only 18 in. square, but they should not be less than 2 ft. d especially in stony soil. The reason for this is, that if the yo plant grows and develops, you can always help its development digging up the ground around the tree as it grows, but of cours is quite impossible to do anything to the tap root in the ground, if the tap root grows up to the end of the hole and meets the st soil, it will not be able to grow any further; it will bend, double get crooked, and the tree will remain a sickly miserable thing never give you the rich return you are expecting.* A cooly will from 50 to 60 holes 2 ft. deep by 2 ft. square in a day, accordin the nature of the soil; in rocky soil he might, however, not be abl cut more than 10 to 20. As soon as your holes are ready, you begin to fill them.

Filling.—Many planters think that it is necessary to leave holes open for some time—to let the ground get cool or for s other unknown reason; but there is no justification in this. might just as well dig the holes and fill them in again at once; in that case your coolies would scamp their work and you would be able to control it, nor able to convince yourself that the h have been cut wide and deep enough. Therefore the filling u done only after holing is finished and has been received and accep by the planter. The hole is filled now with top soil, not again the same soil that has been dug out, and the earlier you fill the h the better. If the holes are exposed to the sun for any lengt time the sides get dry and hard, and that's just one of the v things you intend to avoid by digging holes. In cutting holes d allow your coolies to touch or to remove the pegs. If that is done they will remove the pegs, and in replacing them they will put them back in the exact place again, and the result will instead of a regular good lining, a disgusting zig-zag.

(*To be continued.*)

* Java planters don't agree with this. In a coffee garden of about 20 t years of age, at Pengalenggan, planted on rich virgin jungle, some trees transplanted with the utmost care. Not one of them had the tap root deepe the ground than 6 to 8 decimeters, whilst surface roots were developed so m stronger. There could be no question of the lower soil not being equally adapted for these roots ; but it may be that a less careful planting out origin forced the tap root to a deviation and to shoot out branches. Whatever th may be in this, it proved beyond any doubt that the undisturbed growth of tap root, as such, is not indispensably necessary for a strong development of coffee tree up to a high age. ("De Oost-Indische Cultures," by K. W. Gorkom, Amsterdam, 1880.)

DISTRICT ASSOCIATIONS.

NILGIRI PLANTERS' ASSOCIATION.

A GENERAL meeting of this Association was held at the Maso Hall on Saturday last, which the following members attend namely, Messrs. E. G. Windle (*Honorary Secretary*), Cockbu L. W. Grey, J. H. Pascoe, H. J. Wilbraham, Rhodes Jam J. W. Minchin, Barber and Marden.

Mr. Rhodes James was called to the Chair. The proceedings of

MILLIE & REDMOND, late P. THOMPSON & CO., *Ootacamund, Engineers and Contractors.*

eeting were read, and the Honorary Secretary then informed the eeting that the proposal to employ an Agricultural Chemist had llen through so far as this Association was concerned. He had ceived a letter, he said, from the Secretary of the Shevaroy anters' Association, proposing that that Association should join e Nilgiri Planters' Association in this matter. This Association d subscribed 2,100 rupees towards the project and, in so doing, had rhaps done all that could be expected of it. One planter, it would pear, had suggested the idea of getting a chemist altogether for emselves, and had sent round to sound some of his friends on the bject, but the measure of success that had attended his efforts was known. In such a matter as these, this who did not join would ap the same advantage as those who did—and this would be unfair. The next subject on the Agenda was the Lady-bird Fund. This ssociation had subscribed Rs. 2,125 towards it, which had already en remitted to the U. P. A., and the fund was fairly well supported. he Honorary Secretary said he had a letter from the Planting ember telling him that Government was prepared to give Rs. 2,000, d that all necessary arrangements had been completed for r. Newport to go to Australia, and that his passage by the Orient he had been secured. From Mr. Newport himself a letter had been ceived enquiring if he was to despatch consignments of lady-birds fetch them himself; also whether he was to make arrangements r the despatch of further consignments, after he left Australia, and the event of this latter enquiry being decided in the affirmative, whom such consignments were to be addressed. The Nilgiris, it as thought, would be the best place to which to bring the lady-birds, they are in touch with all the South Indian planting districts, t as it would be necessary that Mr. Newport should be here, too, ll they were distributed, and that it would be an expensive business, was decided that he should, in the first instance, proceed with em to the Pulneys, his own home. An additional advantage of the lneys would be that the efficacy of the lady-birds would be tested a locality where the green bug is more destructive than it is on e Nilgiris. Mr. Pascoe offered to place a bungalow at Woodlands the disposal of Mr. Newport in the event of it being decided to ake the Nilgiris Mr. Newport's headquarters.

The Association accordingly resolved to reply to Mr. Newport, to e effect that he should personally convey the lady-birds to India d take them in the first instance to the Pulneys, and that arrange- ents for subsequent consignments should be deferred till it was en how the first instalment turned out.

Counsel's opinion on the Contract Forms applicable to Act XIII. 1859 it was reported had been asked and paid for, but not yet ceived.

The Honorary Secretary passed on to the correspondence that had ssed with the Superindendent of Police on police supervision during e coffee season. That officer had complained of the insufficient formation on certain passes that covered consignments, and desired at all matters required to be noted on the pass should be so noted ensure efficient check of coffee in transit.

The nomination of the Planting Member of Council was next pro- eded with. The Hon'ble Mr. Hodgson had refrained from attend- g this meeting to allow it the freest discussion on this subject. The nited Planters' Association of Southern India had expressed a hope at Mr. Hodgson would come forward again, and this Association as of the same opinion. Accordingly Mr. Gray proposed, and Mr. hodes James seconded, that the Hon'ble Mr. Hodgson should be commended for another term of office.

This brought the business to a consideration of Mr. E. R. indersley's two propositions: (*a*) That all growers of coffee under a rtain acreage, say 10 acres, should by law be bound to produce the ffee they have for sale before some responsible person in their own mediate neighbourhood and obtain their passes for the coffee from m. (*b*) That the extent of their holdings should be registered and, if ssible, an estimate of their probable crops made before crop time.

The discussion that ensued did not show that members believed in the possibility of Government accepting these suggestions, but as the Coffee Stealing Act was in its hands at present for amendment, it was resolved to forward Mr. Kindersley's proposals for incorporation in the provisions of the amended Act. The Chairman moved this resolution and Mr. Minchin seconded it.

The last subject considered was a letter from the European and Anglo-Indian Association regarding proposed amendments to the Criminal Procedure Code. The letter was recorded.—*Nilgiri News.*

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MARKET REPORT.

COFFEE.

Messrs. R. J. Rouse & Co.'s Weekly Coffee Report (January 21, 1898) says:—Rather larger supplies were brought forward in Auction this week; the demand however was slow and values ruled generally in buyer's favour except for a few colory parcels of new crop which attracted good competition.

No East India was offered.

Columbian which formed the bulk of the catalogues sold slowly at 1/- decline for ordinary descriptions but colory lots were easily disposed of at full prices, whilst fine new crop Costa Rica realised extreme rates.

Futures after some slight fluctuations close 6d. to 9d. lower than last week, but business has been very quiet. Messrss. Naumann and Gepp estimate the next Rio crop at $2\frac{1}{2}$ to $2\frac{3}{4}$ million bags.

Messrs. Wm. Jas. and Hy. Thompson's Report of the Colonial Markets for the Week ending January 19th, 1898, says:—Bank rate 3°/₀. Bombay Exchange closes at 1s. $4\frac{1}{16}$d. Brazil Exchange $6\frac{13}{16}$d. Rupee paper $3\frac{1}{2}$ °/₀ $63\frac{3}{8}$. Silver $26\frac{1}{8}\frac{1}{1}$d. per oz.

Continues dull for all kinds except fine, which meets with a ready sale; gray and ordinary qualities have mostly been bought in. Fine Plantation Ceylon realized extraordinary prices, peaberry selling up to 151s. Brazil markets continue flat.

The next Dutch sale will take place in Amsterdam on the 25th inst., when 30,765 bags Java, 40 packages Padang, 1,500 bags Menado, and 40 bags Sumatra will be offered.

Daily receipts averaged 8,100 bags in Rio and 14,100 bags in Santos.

Futures show a slight advance, closing quiet, viz.:—Good average Santos in Havre, March delivery, fcs. 37·75, in Hamburg pf. 31, and No. 7 low ordinary Rio —, in New York $5.80.

To-day's London official quotations are:—

	Jan.	March	May	July	Sept.	Dec., '98.
SANTOS ...	31/-	31/3	31/9	32/-	32/3	32/9

We quote:—

Ceylon, mid. to good mid.	95/@105/	Costa Rica, mid. to fine...	77/@105/
Do. small to low mid.	75/ „ 93/	Do. ord. to low middling.	53/ „ 76/
East India, mid. to good mid ..	80/ „ 90/	Jamaica, good to fine ord.	47/ „ 58/
Do. small to low mid.	65/ „ 79/	Do. greenish to fine colory...	70/ „ 125/
Guatemala, mid. to fine...	75/ „ 100/	African ...	28/ „ 30/
Do. good ord. to low mid...	55/ „ 73/	Columbian, ordinary ...	38/ „ 43/
Salvador, good ord. foxy greenish...	45/ „ 49/	Do. good ord. to low mid...	45/ „ 70/
		Do. mid. to fine...	71/ „ 98/

Receipts in Brazil to 19th January compare as follows with previous years:—

	1897-98. Bags.	1896-97. Bags.	1895-96. Bags.
RIO	2,871,000	2,350,000	1,735,000
SANTOS	4,680,000	3,763,000	2,507,000
	7,551,000	6,113,000	4,242,000

Auctions:—

15 casks and tierces Plantation Ceylon ... ... @ 80/ @ 116/

302 bags East India { 181 bags Neilgherry, new crop... „ 65/ „ 102/6 / 121 bags Wynaad, new crop ... „ 61/ „ 90/

65 bags Liberian Travancore, part sold ... ... „ 20/ „ —

35 bags Liberian Johore ... ... „ 40/6 „ —

4 bags African Liberian bought in.

86 bags Nyassaland, London cleaned, partly sold.

12 bags St. Thome bought in.

344 bags Salvador bought in.
377 bags Nicaragua chiefly sold ... ... @ 41/ @ —
587 bags Costa Rica, chiefly new crop, part London cleaned, chiefly sold ... ... „ 55/6 „ 109/
2,796 bags Columbian, part London cleaned, chiefly sold. „ 42/6 „ 100/
33 bags Bolivian, London cleaned, ... „ 81/ „ —
80 bags Guayaquil ... ... „ 38/6 „ —
462 bags Guatemala, chiefly new crop, part London cleaned, chiefly sold ... ... „ 38/ „ 88/6
369 bags Vera Paz, part London cleaned, chiefly sold. „ 70/ „ 81/
82 bags Mexican bought in.
36 bags Venezuelan London cleaned, new crop ... „ 86/6 „ —
1,369 barrels 220 bags Jamaica, part London cleaned, chiefly sold ... ... „ 40/ „ 100/

Prices realized at auction for the principal Marks of East India :—

NEILGHERRY.

	A	B	C	PB	T
Hilgrove	101/6	82/6	65/6	107/6	52/-
JH Pilloor	102/6	83/6	65/-	109/-	55/-

WYNAAD.

Waker's Estate Nellakota	90/-	73/-	61/-	96/6

Landed last week ...891 *tons.* *Deliveries* ...603 *tons.* *Stock* ...10,296
Do. last year ...589 „ „ ...554 „ „ ... 8,460

TEA.

Messrs. Gow, Wilson and Stanton's Indian, Ceylon, and Java Tea Rep dated January 21st, 1898, says :—

QUANTITY BROUGHT TO AUCTION IN LONDON FROM 1ST JUNE TO DATE.

	Indian.	Ceylon.	Java.
1897-1898...	1,080,693 packages.	755,036 packages.	26,679 packa
1896-1897...	1,095,099 „	721,444 „	24,872 „

62,649 *pkgs.* INDIAN
21,232 „ CEYLON
626 „ JAVA
} Total 84,507 packages were offered in pu auction this week.

During the first seven months of the season duty payments and the exports of Indian and Ceylon Tea continued fairly satisfactory.

Movements of Tea in United Kingdom from 1st Jan. to 31st Dec., as shown by Custom House Returns.

	Imports.			Home Consumption.			Exports.		
	1897.	1896.	1895.	1897.	1896.	1895.	1897.	1896.	1895.
British E. Indies ...	104,986,284	102,869,115	95,084,955	71,084,904	70,285,869	68,444,618	3,077,954	2,826,904	2,356,5
Ceylon	54,764,702	55,537,683	46,884,376	52,451,789	50,490,685	46,118,248	6,149,981	5,076,456	4,392,2
China	26,010,126	29,408,400	33,657,745	9,454,356	11,727,915	13,685,149	11,727,041	12,080,709	11,031,4
Other Countries ...	3,765,968	3,362,994	5,102,395	2,769,846	3,063,798	2,635,988	611,326	572,299	633,0
Total lbs.	189,527,080	191,178,192	179,729,471	135,760,895	135,568,267	130,884,003	21,566,302	20,556,368	18,413,2

Analysis of above export of Tea from U. K. during the last two years (not including transhipments).

	Indian.		Ceylon.		China.		Other Countries.	
	1897.	1896.	1897.	1896.	1897.	1896.	1897.	1896.
Countries in Europe	1,717,824	1,127,000	3,887,012	2,948,857	8,021,730	6,610,824	444,062	421,8
United States	326,183	691,865	768,256	702,895	745,630	1,545,906	27,366	38,5
British N. America	399,285	536,539	674,972	796,144	560,574	1,541,400	6,875	26,5
Other Countries	634,662	471,500	819,741	628,560	2,399,107	2,382,579	133,023	85,3
Total lbs. ...	3,077,954	2,826,904	6,149,981	5,076,456	11,727,041	12,080,709	611,326	572,2

Indian. The quantity brought forward was larger than ever previously recorded. Teas for price were fairly steady, but other kinds sold irregularly and at lower rates for Broken descriptions over 8d. per lb. The Official Wire gives exports to the U. K. for the first half of January as lbs. 4,180,000 against lbs. 5,360,000 for same period last year, making total quantity exported to U. K. from 1st April, 1897, to the middle of January as lbs. 125,320,000, against lbs. 122,750,000 last season.

Week's av. of Tea sold on Garden Account, 1898, 46,509 pkgs., av. 8·28d. 1897, 42,616 pkgs., av. 9¼d.

	1898.		1897.		1st June to date 1897-8.		1st June to date 1896-7.	
	Pkgs.	Price.	Pkgs.	Price.	Pkgs.	Price.	Pkgs.	Price.
Assam ...	23,957	9·25	21,915	10¾	383,275	10·05	374,574	10·09
Cachar & Sylhet...	11,868	6·96	11,647	7¼	204,383	7·04	192,569	7·42
Chittagong ...	178	7·25	131	8¼	4,834	7·19	2,662	7·60
Chota Nagpore ...	56	5·25	83	5¼	1,306	5	1,233	4·84
Darjeeling ...	1,729	11·28	1,957	11¾	55,444	11·19	49,820	1/·21
Dooars ...	6,083	7·30	4,353	7¾	92,404	7·63	96,694	7·51
Kangra, &c. ...	562	6·80	111	8½	6,426	7·28	4,564	7·06
Neilgherry ...	462	6·69	313	6½	5,124	7·07	2,926	7·01
Terai ...	501	6·88	619	7	18,053	7·18	11,166	7·12
Travancore ...	1,605	6·23	1,487	7	22,509	6·42	19,661	7·09

Total sold on Garden Account 1st June to date 1898, 793,758 pkgs., av. 8·93d. 1897, 755,869 pkgs., av. 9·03d.

Comparative prices of Indian Tea in London :—

		1898.	1897.	1896.	1895
Dust.	(Fair ordinary, dark liquor) ...	3⅜d	4⅛d	4¾d	4⅜d
Fannings.	(Red to brown, strong rough liquor) ...	4¼d	4⅛d	4d	
Broken Tea.	(Brownish to blackish, strong liquor) ...	6¼d	6¼d	6d	7
Pek. Soug.	(Blackish greyish, useful liquor).	6½d	6½d	6½d	8
Pekoe.	(Greyish to blackish, some tip, useful liquor) ...	7½d	8d	7¾d	9
Pek. Soug.	(Blackish greyish, inferior liquor).	5d	5d	5¼d	
Pekoe.	(Blackish greyish, some tip, inferior liquor) ...	5½d	5¾d	5¾d	7

Ceylon. The sale passed good spirit, without material change values. Private telegraphic advice gives exports to U. K. for first half the month as lbs. 3,500,000 against lbs. 4,000,000 last year, and estima the quantity for the month as lbs. 9,000,000, against lbs. 8,500,000 ship last year. Average for week 8·28d., against 8d. same period last year.

Ceylon Tea sold on Garden Account 1st January to date 1 64,799 pkgs., av. 8·27d. 1897, 69,397 pkgs., av. 8d.

Comparative prices of Ceylon Tea in London :—

		1898.	1897.	1896.	18
Pekoe Soug.	(Ordinary leaf ; fair liquor) ...	6½d	6d	6½d	
Pekoe	(Ordinary leaf, little twist ; fair liquor) ...	7½d	7d	7¾d	
Pekoe Soug.	(Rather bold leaf ; indifferent liquor) ...	4¾d	4¾d	5¼d	
Pekoe	(Somewhat bold leaf ; indifferent liquor) ...	5¾d	5½d	5¾d	

Java. The small auction passed with good competition at ab previous quotations.

Bank Rate 3 per cent. Exchange on London three months sight Calcutta 1/4¼. Colombo 1/4¼.

PUBLIC SALE OF SOUTH INDIAN TEA.

(AVERAGE FOR ALL INDIA 8·28*d.*) *January* 21*st.*

GARDEN.	Total.	Average.	Broken Org. Pek. or Flowery Pekoe.		Pekoe and Unassorted.		Broken Pekoe.		Pekoe Souchong.		Broken and Souchong.		Fannings, Dust, and Various.	
	Quantity	Price.	Quantity	Price.	Quantity	Price.	Quantity	Price.	Quantity	Price.	Quantity	Price.	Quantity	Price.
ilgherry ...	**462 p**	**6·69**												
nsandle ...	43½c	5¼	...	...	...	...	9½c	6 6¾	34½c	4¾	...	...	...	...
danaad ...	55 p	7¾	...	...	25	7	30½c	9¼	...	...	...	...	...	...
w Hope ...	175 p	6½	40½c	†8½	30	8	...	...	35	6	70	5½	...	...
kara Falls ...	98 p	6½	...	...	46½c	7	19½c	7½	14	5¾	...	...	19½c	6
aforth ...	91½c	7¼	31½c	8½	46½c	7	...	...	20½c	6	...	...	...	...
uth Wynad ...	**409 p**	**6·88**												
nbarie ...	100	5	47	5¾	53	4½	...	...	...	...	...	...	...	...
ulika ...	105 p	7¾	24½c	9	37	7	24½c	1/-	20	5¾	...	...	...	...
ramaculla ...	180 p	7½	40½c	7¾	27½c	7	15½c	9¼	12	6¼	25	5½ †5¾	11½c	6¼
avancore ...	**1605 p**	**6·23**												
hley ...	50	6½	...	...	30	5¾	20	7¾	...	...	...	...	...	...
lamore ...	110½c	5¾	...	...	79½c	5 5¼	29½c	7¼	...	...	1½c	4¼	1½c	2½
naccord ...	164 p	6¼	...	...	73	6	45	7¼	21	5¼	...	...	25 p	2¾5¾
aemore ...	48	6½	...	...	21	6	18	7¾	...	...	8	5½	1	6¼
1R ...	47	5½	...	...	27	5¼	20	6	...	...	...	...	...	...
rrimony ...	220½c	4¾	...	...	182½c	4½4¾	32½c	6¼	...	...	1½c	4¼	5½c	2½
enmore ...	200½c	5	...	...	120½c	4½4¾	80½c	5¼5½	...	...	...	...	...	...
vercauld ...	100 p	6¼	...	...	56½c	5¾	32½c	8	10	5 5¼	...	...	2	2¾
ield T CoIsfield...	18	8	...	...	...	...	18	8	...	...	...	...	...	...
rchiston ...	66 p	6¼	22½c	7½	24	5¾	14½c	7¼	...	...	1	5	5 p	3½
onmudi ...	138 p	6½	...	...	63	6	30	7¾	31½c	5¾	...	...	14½c	3½6¾
afield ...	120½c	6¼	...	...	85½c	5 5¾	33½c	8¼	...	...	1½c	...	1½c	2½
m Trauncre TCV.	180 p	7¾	71	8¾9¼	66	7¼7¾	...	...	28	6¼	...	...	15½c	5
agbrook ...	144	6½	12	7¼	56	6¼	36	8	15	5¾	20	5¾	5	4½

† = withdrawn.

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acao, best Trinidad varieties, Rs. 1250 per dozen pods, equal to about 300 seeds.
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Vanilla Cuttings, Rs. 10 per dozen.
Coca, small leaved kind for low elevations, Rs. 4 per 100; Rs. 20 per 1,000; large leaved kind for high elevations, Rs. 5 per 100; Rs. 30 per 1,000.
Giant Kew Pine Apple, Rs. 10 per dozen suckers; 5 dozens for Rs. 40.
Pepper, best variety, Rs. 10 for 1,000; new crop now ripening, 5,000 for Rs. 40.
Para Rubber. Orders being booked for the coming crop, available in August-September, quantity limited.
Sisal Hemp, Rs. 12 per dozen suckers; 5 dozens for Rs. 50.
Liberian offee. Orders being booked for January delivery, price according to quantity.

TELEGRAPHIC ADDRESS :
WILLIAM,
Veyangoda, Ceylon.

Cinnamon. Orders booked for May-June delivery, price according quantity.
Ramie. Seeds Rs.5 per ounce; root cuttings, Rs.10 per 100, and Rs per 1,000.
Fourcroya Gigantia, (Mauritius Hemp,) Rs.10 per 1,000 seedlings; lar quantities on special terms.
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PLANTING OPINION.

A WEEKLY JOURNAL

WRITTEN BY PLANTERS FOR PLANTERS.

VOL. III.] COONOOR, SATURDAY, FEBRUARY 19, 1898. [No. 7.

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ADVERTISEMENTS.—From the 1st October, 1897, the charge for line advertisements will be: 4 as. per line for the first, 3 as. for the second, and 2 as. for the third and succeeding insertions. Five-line advertisements from Subscribers will be inserted for three issues for one rupee; non-Subscribers will be charged two rupees.

DOMESTIC OCCURRENCE.—The fee for inserting a domestic occurrence will be *One Rupee* for each insertion, payable in advance.

N.B.—Remittances should be sent to the Manager, "Planting Opinion," Esplanade Row, Madras.

IMPORTANT NOTICE.

The Business Offices of this paper having now been removed to Madras, all remittances should be made payable to the Manager of *Planting Opinion*, Esplanade Row, Madras, who will also attend to all advertisements, &c.

Letters to the Editor should be addressed to Coonoor, as usual.

SEASON REPORTS.

NOTICE.

TO OUR SEASON REPORTERS.

Please post your next reports to reach Madras on Friday, the 25th February, 1898.

Season Reports should be sent to the Printers, Messrs. ADDISON & Co., direct, and not to *Planting Opinion* Office.

Nilgiris. COONOOR, 15*th February.*—*Weather.*—Very rainy the whole week; one or two regular plumpers. Cleared up this afternoon, but still overcast at night. *Crops.*—Coffee wants a little sun and the remainder of crop will be in with a rush. Spike very forward and a splendid early blossom seems fairly certain. The rain will be grand for tea and should force out a bountiful March flush. *Labour.*—Ample enough, as usual.

Kadur. MUDIGERE, 14*th February.*—*Weather.*—Fine but cloudy, so much so that on the 11th many predicted rain, which is not wanted now. Clouds have passed away and the planter is happy. *Labour* is plentiful, and many estates are paying coolies off. Pruning has been delayed till *after* the blossom showers, which, for many reasons, is the most reasonable one. *Interesting Items.*—The Rev. C. H. Wright held Divine Service at Moodsoosy on the 9th. There were ten present, and a collection made in aid of the Additional Clergy Fund. A sad accident occurred last month, when a young planter shot his shikaree, who died almost immediately. The annual meeting of the South Mysore Association is to be held at Belur on the 3rd March. As the meeting is to be held for two days, it is a pity that a more central and a more convenient place has not been chosen. Price of cardamoms Rs.70 a maund; coffee Rs.10 a maund.

Kil Kotagiri. NILGIRIS, 15*th February.*—Rain has fallen since Wednesday night and has done considerable damage on the estates. No rain has fallen in February for the last twenty years so incessantly or so heavily. On Wednesday night the rain was 5·83 in.; ·12, Thursday; ·38, Friday; 1·45, Saturday; 6·65, Sunday; 4·25, Monday. Total for six days, 18·68. The wash caused, especially on young

clearings, is very bad, the last two days' rain doing all the damage. One nursery that has been used for twenty years has been swept clean out, carrying both coffee and shade seed beds away, the water running 6 ft. deep over the beds. It is still raining. *Labour* fairly plentiful. *Grain* very expensive.

Coorg.

POLLI BETTA, 16*th February.*—*Weather.*—Some drops of rain which fell on Friday last, the 11th, in the evening served to make us very apprehensive; but I am glad to say it proved a false alarm. It clouded up somewhat yesterday again. There has been heavy dew on some nights. *Crops.*—Gleaning still in hand. Spike of coming crop somewhat forward, but fresh and healthy. *General Health.*—Same as reported last week. *Interesting Item.*—Rifle meeting arranged for early in March.

S. E. Wynaad.

DEVALA, 16*th February.*—*Weather.*—Since my last report there was no change in the weather, except all yesterday it was very cloudy and at about 3 P.M. there was slight drizzle; at night it rained very heavily for about 2½ hours. To-day partly sunshine and partly cloudy. *Crops.*—Last night's rain brought the spikes forward. Paddy harvest is finished and the ryots have begun ploughing. *Grain.*—Salt 8, rice 8, cholum 9, and ragi 16 seers per rupee. *Health.*—Fever. *Labour.*—Sufficient.

Nilgiris.

KOTAGIRI, 17*th February.*—*Weather.*—January cold; crop dragging and coming in very slowly to make up deflated estimates; one appreciable shower of ·25 in. on eclipse day; total for that month ·70 against average due 0·47 in. It was hoped that rain would hold off, but it has been coming down in buckets since last Friday, upwards of 18 in. falling in three days on the coffee half way down the ghaut, of which as much as 8·25 in. was recorded in twenty-four hours; it was heaviest to the eastward, notably Kil Kotagiri side and lighter higher up the ghaut approaching Kotagiri; still the rainfall recorded at the 8th mile down the ghaut has been on the 10th, 4·85 inches; 11th, 0·08; 12th, 0·25; 13th, 1·80; 14th, 7·00; 15th, 1·30; 16th, 1·80; total, 17·08 inches; whilst in the station itself it aggregated only 5·23 in., the heaviest fall, on the 14th, in the 24 hours gauging only 2·68 in. Clearing up to-day, and although such early rain is much to be deprecated, most places, especially Kil Kotagiri side, where crops have been very short and early, were very forward, and this heavy downpour will everywhere bring on balance of crop on the trees and in most places bring out a great show of flower. Ghaut road messed about a good deal. *Interesting Item.*—Annual regimental rifle meeting over before the rain; nothing "big" on in individual scores; team put together 392 points for Bates' challenge cup, beating Coimbatore by two points only. Other companies go one better.

HONEY AND ITS PRODUCTS.

IN the last fifty years immense progress has been made in bee-keeping or agriculture, as it is termed scientifically. The three products of agriculture are honey, wax and "propolis." Centuries ago, the trade was considerable, and held of far more importance than now. Wax was largely used as an illuminant; honey was the only substitute for sugar, besides being largely used in medicine. The Reformation and the introduction of cane sugar joined hands in dealing a severe blow at the trade. Mr. W. A. Harris, in an interesting paper in the *R. A. S. E.* Journal, asks, and answers, the question: what is honey?

Honey, as we know it, is composed of two kinds of sugar, named dextrose and levulose, with slight admixtures of pollen and formic acid. It is stored by bees for their winter food and for the nourishment of their young, being extracted from the nectaries of flowers, which in many cases depend entirely on this act for the fertilisation of their seed. Hence the oft-reiterated importance of having prosperous stocks of bees in the immediate neighbourhood of fruit plantations. If these stocks are at a distance, and it happens that cloudy weather prevails during blossoming time, the bees will not be able to do their work, for it is only in the finest weather that they venture to any distance from their hives. Mr. deChampville includes bees among our allies against plant parasites, inasmuch as that in collecting pollen the bees expose the eggs of the parasite, and arrest development or cause them to fall.

Apis mellifica, the "honey-bee," stands alone in the great order of Hymenophera in the enormous quantity of honey it can be made to supply under domestication. As much as two cwts. of honey have been obtained from a single hive in a season, while last year there is an authenticated instance of a yield of 334 lbs. taken from one stock. This is of course phenomenal.

Honey is justly esteemed as an article of diet, for it is the most digestible of all sugars. Sugars, fats and starches supply the chief materials for the evolution of energy and keeping up the heat of the body. The rate at, and manner in which, these compounds are assimilated by the blood vary greatly. Fatty matters must be acted upon by certain secretions before they can be assimilated at all. Starch matters are likewise insoluble until converted into sugar. Sugars, however, can almost immediately be dissolved and taken up. Of sugars there are, however, two main classes, cane, or sucroses; and grape and fruit, or glucoses. The former must be converted into the latter before they are available as food. Now nectar consists mostly of cane sugar, but it is partially digested in the crop of the bee and is converted into glucose in the shape of honey. Thus many people, who on account of the derangement of their alimentary organs, can digest neither fat nor cane-sugar, find no difficulty in assimilating honey. Honey never turns rancid and will keep for years if under warm and dry conditions. Compared with butter, it is little more than half the price of the best fresh butter.

Its taste depends greatly on the sources from which the nectar is obtained. White clover, sainfoin, lime or linden, fruit trees of all sorts, and lastly heather, all give their distinctive taste and aroma to the honey made from them. Honey is marketed in two forms, as "comb-honey" or "extracted." Many people prefer the former for two reasons; first, that it is bound to be genuine; secondly, that it is "ripe" (if sealed over). When honey is freshly deposited by the bees, it contains an excess of water. Unless this water is allowed to evaporate, the honey will ferment. So the intelligent insects, before sealing the cells with wax, allow a few days to pass to allow of the necessary escape of water. "Extracted" honey is obtained by ejecting it from the combs by centrifugal action in machines made for the purpose. The combs are often made artificially, and when emptied of the honey are replaced in the hives, to save the extra labour the bees would have in building the comb. Some authorities state that 16 lbs. of honey are used for the elaboration of 1 lb. of wax. So the saving in "extracted" honey is thus considerable.

Its medicinal effect is undoubted. It is a mild laxative

mixed with lemon or lime-juice it is very useful in cases of relaxed or sore-throat, in quinsy and tonsilitis. As a plaster for boils it has been in repute for ages.

As a beverage, mead, it is little known nowadays, except in the country. Yet if properly made, it is a most agreeable liquor, being in fact superior, both as regards flavour and wholesomeness, to many of the light foreign wines. Careless manufacture has ruined its former reputation. In our next issue we shall give recipes for the preparation of the different meads that can be made. An excellent vinegar, or melegar as it should be termed, can also and is being manufactured from honey. It has various advantages over ordinary vinegar, such as not staining silver or linen; it is also recommended by doctors and dentists to those who cannot take the common corroding vinegar.

Adulteration in foreign honey is largely practised; English honey has so far kept its name intact, while the French article has also an excellent name.

Wax is not, as is generally supposed, formed from the little coloured balls of pollen carried on the bee's hind legs. It is a carbohydrate, related to oils and fats, secreted in small pockets or sacs, four on each side of the abdomen of the insect. Wax is used in the manufacture of the "comb-foundation," which is one of the mainstays of modern manufacture. It is, unluckily, often adulterated with deleterious substances which results in the bees refusing to work on it. As an illuminant, it is still used to a considerable extent, not only for candles but for tapers and "vestas." The fact of wax still being so cheap is explained by the large imports from foreign countries where it is gathered in the forests.

The third product of the hive, propolis, is a highly resinous and tenacious material, collected by the bees from the buds of certain trees, notably the large and sticky ones of the horse-chestnut and from many of the coniferal or cone-bearing trees. It is employed by the bees for stopping every crack and crevice, and for sticking the hives to their floor boards. Slugs, mice and other intruders are encased in propolis to prevent putrefaction.

Careful experiments with the English and Italian bee have been made for the past few years on the Nilgiris, but have at last resulted in failure. Honey was obtained in quantity and of an excellent quality, but for some reason or other breeding did not take place. It is possible that renewed experiments might succeed eventually, but we would strongly recommend Anglo-Indian bee-keepers to experiment instead with the ordinary small Indian bee. Modern methods of bee-keeping could be applied almost in their entirety, and a remunerative trade established at a slight outlay of capital. As most of the most successful and enthusiastic bee-keepers in England are ladies, the wives and daughters of planters would find in agriculture a fascinating and remunerative industry.

NOTES.

Ceylon tea estimate. The official estimate for the present year puts the crop at 122 million pounds, an estimated increase of 6 million pounds over last year's crop. Since 1891 the yearly increase has been respectively about: in millions of pounds, 3, 13, Nil, 13, 1, 8, 6.

Coffee and Kola in British Guiana. The cultivation of coffee continues in this colony, but so little enterprise is shown that the quantities produced are little more than to satisfy local demands. It is the same with cacao. Kola is looking up a little and some shipments have been made.

Dentrification and farm-yard manure. In the last quarterly number of the *Journal of the Royal Agricultural Society of England*, there is an able paper by Professor R. Warrington refuting the conclusions of the German scientists on this subject. As we gave much prominence to the latter, we hope to likewise give similar publicity to the other side of the question in a future issue.

Indian patents. We have received a copy of the *Indian Patentee's Guide*, compiled by Mr. H. H. French, Superintendent, Patents' Branch, Revenue and Agricultural Department of Government of India. It will be found of great assistance to any one desirous of applying for patents, the explanations regarding the working of the Act being clear and concise. Copies may be obtained from the compiler, at 11, Marsden Street, Calcutta.

Coffee planting in Burma. We cull this from an exchange. It is presumed that the concessions will not extend to Europeans:—"Government experts have reported that there are excellent prospects for coffee-growing on the Toungoo Hills, Burma. A few European planters have already succeeded beyond expectation. The Commissioner of Tenasserim has intimated that advances will be made to Burman and Karen planters who settle on the hills with the intention to grow coffee, and it is anticipated that this offer will be largely taken advantage of."

Lime in bones. Though the lime in bones is of value in sweet, well aerated soils, it cannot replace the action of caustic lime in sour wet soils, as it is a neutralized body. On these soils, lime should be applied in its caustic state, *i.e.*, should be burned on the estate. As soon as possible after burning it should be applied as a surface dressing, and lightly worked in. By this mode the chemical action of slaking goes on in the soil, the moisture being drawn from the soil instead of the air, and the lime, bursting in the soil, becomes perfectly mixed with the latter.

Paddy straw in nurseries. The usual thing in these parts, writes an Assam planter to an exchange, is to put paddy straw lightly over the earth so as to retain the moisture when the seed is planted in the nursery. If paddy straw cannot be got, old thatch is the next best, but paddy straw is out and away the best. The paddy straw seems to cling to the earth better, and is far softer, and seems to dissolve in a sort of way just when it is not wanted as the young plants begin to show above the earth. The thatch always seems to be standing away from the earth; with the least puff of wind away it goes. Nor does it retain the dew so well.

Rubber on the Nilgiris. Mr. L. C. Grey, Pykara, Nilgiris, has succeeded in producing a very good sample of rubber on his Northern Hay estate, at about 3,000 feet elevation. In a letter to the Nilgiri A. H. Society he gives the report and valuation on the rubber. The variety of tree is Castilloa. The rubber is of good colour, very clean and is quite soluble in benzol; it has no bad odour, and its elasticity is excellent. The sample is similar to some Burmese rubber sent to the Imperial Institute which was well reported on, but, unlike those samples, it shows no disposition at present to decompose and become sticky; value in London 1*s.* 9*d.* per lb. Details of yield, etc., would be welcome. We congratulate Mr. Grey on his successful experiment.

Budding and Grafting Orange Trees. A writer in a Jamaica paper says on this subject that time could be saved in converting the sour orange into sweet, especially in the case of the older trees, if the process of budding were combined with the equally simple one of cleft grafting. For instance, after cutting the stalk to within a foot or two of the ground, the cut surface might be evenly pared, and four or more scions, or slips of sweet orange, at once inserted, plastered and bound up as directed in works on gardening. Even if the scions failed to take, shoots would inevitably spring up from the stump, which might be budded in due course. Cleft grafting has been found to answer with such succulent barked trees as the mango and cherimoyer, so that it would be worth trying the experiment with the orange.

A Useful Hedge Plant. One is always hearing complaints nowadays of the paucity of good plants suitable for hedge purposes. This being so, thanks are due to Mr. A. Tempest, of Parnell, for his enterprise in introducing and propagating the "Kei Apple." It was Sir George Grey, I believe, who first mentioned the shrub, which grows wild upon the Karoo, or sandy plains of South Africa, and it certainly seems a perfect hedge plant. It is a sturdy, stocky, short-jointed grower, an evergreen, and with thorns which grow to six inches long and over, and a "perfect terror to evildoers," be they beasts or human beings. As an added advantage, the female plants (they are of both sexes) fruit heavily, bearing in great quantity yellow plum-shaped fruit, the size of a greengage, which are both pleasant eating and make an exquisite jam. Orchardists would do well to bear this shrub in mind when planting.

Composition of Jadoo. In answering some questions at a lecture given by him at Worthing, in last November, Col. Halford Thompson replied that: "Jadoo is simply peat moss with soot, bone-meal, and gypsum, with a very small quantity of phosphoric acid and potash. These ingredients are boiled together, and then fermented. The whole essence of the success of Jadoo lies in the amalgamation by fermentation in a particular way. We make also a liquid, which is much used in France. This is often very useful where you cannot use the fibre, although it has not all the rooting properties that the fibre possesses. It consists of the same components boiled together in a more concentrated form and fermented. You may see from this that there is nothing in Jadoo that can be in any way deleterious. There is nothing in it that can possibly do any harm. Of course, if the stuff were ba made or badly fermented, you might get the soot in a cr form, but as we make it the soot entirely vanishes amalgamates. It is on proper fermentation that the wh process depends."

Distilling of Essential Oils. Among the methods employed small flower-farms for the distilla of essential oil from flowers herbs are the following:—Place the cleanly-picked pe or herbs in a bag, which is suspended in boiling wa The bag must not be allowed to touch the bottom of copper, or it will give a disagreeable tarry flavour to soil. The steam from the boiler is condensed in the us way by passing it through a worm, which is kept cool means of running water. The liquid that comes out of worm contains a thin film of oil, which is allowed accumulate in a reservoir till it can be drawn off by a

To manufacture attar of roses, the best varieties *Rose centifolia* and *R. sempervineus*. The petals shoul carefully separated from the salyx and then placed i glazed earthen jar, into which pure spring water is ad till the petals are covered. The jar should be exposed the sun for a few days, and the resultant film of yellow gathered by gently soaking it up with cotton wool squeezing it out into a phial.

The ordinary methods of distillation can also be emplo

Brazil coffee prospects. Rio de Janeiro advices, states *H. & C. Mail*, to December 28, that the weather had been very favourable to the grow coffee crop, having been warm, with occasional rains. *Rio News* of this date reports as follows on the mark "The week, or the five working days, past was ac again, with total sales estimated at a little over 100, bags, of which nearly 60,000 bags were declared on 23rd and 24th inst. The receipts have continued on same scale, and the decided decrease in the supply by and barra dentro is neutralised by the coastwise entr which seem perennial, but the shipments have ag exceeded the receipts, and the market has been stea maintained at 12 dols. per arroba for No. 7, until on the 2 some brokers advanced 200rs and others 400rs per arr What sent the exporters into the market for 40,000 b on Christmas eve we did not discover, and the publis advices from the foreign exchanges furnished no expla tion, but the movement strengthened dealers and fact some of the latter having previously shown a little nerv ness, although always disinclined to entertain bids un 12dols."

"Dead" Fertilizers. In the last annual report the Hawaiian Sugar Planters' A ciation, Dr. Maxwell states: "Our upland soils contain 0·5 per cent. of nitrogen; but the crop results are evidence that these 20,000 pounds of nitrogen per acre not available for plant growth so long as certain of mineral compounds remain in their present state. C vation, and the application of small quantities of lime quently (500 to 800 pounds every two to four years), will before other means, in the amelioration of such soils preparing them to be fertile. These observations do apply, at least to anything like the same measure, to

owland soils, whose difference from the uplands we have welt upon in previous reports."

Again, in commenting on the undue presence of iron in ne soil, the same gentleman remarked that the phosphoric cid of the iron soils were so locked up by the iron and ther bases present, that plants could not use it without reat difficulty. In fact, in soils containing over 12,000 lbs. f phosphoric acid per foot acre, not 20 lbs. were available. Nitric Acid" will herein find additional confirmation of is interesting theories.

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he Tea market.

Indians.—The public sales have again been large, viz., 62,649 packges, establishing another record as compared with the upplies offered in any previous week, states the *P.M. Review* f 22nd ult. This heavy quantity following the large offerings f last week has caused some irregularity in values, especilly in the poor liquoring sorts of both whole and broken eafs. These have been largely offered, especially the roken sorts, and, being in excess of requirements, it is by o means certain that prices have touched the lowest point. t is generally the case when leaf teas are reasonable in rice, and practically as good in cup as the broken kinds, hat the latter are comparatively neglected, the trade prefering the former, as the appearance of the blend is more niform. At the same time, broken leafs generally have allen to a level which will doubtless eventually have a timulating effect on the demand, and a much larger usiness may be looked for. The medium and lower grades giving a good infusion have been readily bid for at prices arying little from last week, with the exception of an ccasional slight advance on teas of the same marks sold reviously. The next better descriptions have sold steadily, he supply being sufficient to meet requirements, while the inest sorts, the quantity of which is gradually getting into small compass, are difficult to obtain on former terms. Of he 62,649 packages brought forward at the public sales 7,030 were withdrawn, mainly consisting of Calcutta-bought eas.

Spices.

No business of importance has transpired this week in black pepper, ut quotations have been firmly maintained, says the *Grocer* of 22nd ult. Limited sales of Singapore for arrival have aken place at $4\frac{1}{16}d.$ to $4\frac{1}{8}d.$, and on the spot at $3\frac{7}{8}d.$ for air. Only a trifling supply was offered at auction and withdrawn. White pepper has ruled steady, but business is of light amount for arrival—Penang $6\frac{1}{8}d.$ to $6\frac{3}{8}d.$, Singapore $7\frac{3}{8}d.$, Siam $7d.$; also Penang on the spot and near at hand at $6d.$ At public sale 200 bags Singapore were retired at $7\frac{1}{4}d.$ per cwt. Fine Japan chillies went without reserve at 43*s.* per cwt. Pimento continues to advance owing to the absence of arrivals, but sales are of light amount at the increased rates, and comprise ordinary to good at $4\frac{3}{4}d.$ to $5d.$ *Cassia lignea* has had a moderate inquiry at 47*s.* to 47*s.* 6*d.* Cloves have been much less in request, but the market has a steady tone. Moderate transactions are reported in Zanzibar, for delivery March-May to June-August at $3\frac{5}{15}d.$ to $3\frac{7}{16}d.$, and on the spot at $3\frac{1}{4}d.$ At auction common Penang unpicked found buyers at $5\frac{1}{4}d.$, Amboyna $4\frac{1}{2}d.$, and Seychelles $3\frac{1}{4}d.$ to $3\frac{3}{8}d.$ per lb. Great dulness exists for Cochin ginger, only a few lots of 1,700 bags 20 cases selling —small and ends 13*s.* 6*d.*, and ordinary small-cut 32*s.* 6*d.* to 33*s.* 6*d.* per cwt. Mace has a slow sale at the former currency Nutmegs are partly neglected, but unaltered in value. Penang nuts averaging 65 to the lb. were sold at 2*s.* 7*d.*, Bombay 108 to 90 at 1*s.* 1*d.* to 1*s.* 5*d.*, and West India (in shell) 9*d.* to 10*d.*

Peat moss for drying fruit.

The following short note on the experiments in fruit drying, which have come under the notice of the British Consul at Stettin, will be of service to those of our readers who wish to experiment in preserving fruit. We may mention that large supplies of peat can be obtained at very cheap rates on the Nilgiris:—"The manager of a Government peat-moor near Stettin, wishing to keep some apples and pears during the winter months, thought he would try packing them in 'mull'—that is to say, the dust obtained from the dry moss litter when being torn up by the 'Wolff' machine. In this mull, or dust, he packed a number of pears and apples, enclosing the whole in a wooden case, and pressing the mull well down, taking care that each fruit was kept a little distance from the other. At the end of three months he found the pears and apples perfectly dried and as sound as those prepared for commerce by the more elaborate methods, while on being placed in warm water they began to swell out again to their former proportions. Mr. Powell, the Consul, thinks that if further experiments should be satisfactory, there is a possible future in the process. Mull, he adds, sells in Germany at about 1*s.* 3*d.* per cwt., and, as it is exceedingly light, one hundred weight would dry a large quantity of fruit, while it can be used again many times over, has no smell, and does not convey any taste to the fruit. It merely absorbs the moisture which the fruit contains, at the same time hermetically protecting it from the air."

Coffee Rivalry.

The report of the Government of India on coffee cultivation affords another instance of the way in which the fortunes of distant and disconnected portions of the earth are linked together, says the *Globe*. Take coffee. In the heart of India, a circumscribed zone might be marked out, including the districts of Mysore and Coorg, Malabar and the Nilgiris which would be practically the whole of the coffee-bearing region under the Indian Government, and if we turn the terrestrial globe completely round, we shall find a similar coffee region on the other side of the world, in Brazil.

COFFEE SHADE TREE.

Sun-dried Erythrina Lithosperma loppings, &c, contain per ton:—

61·50 lbs. Nitrogen.
57·38 „ Potash.
14·92 „ Lime.
13·68 „ Phosphoric Acid.

Seed cured under Messrs. Sutton and Sons' advice.

Orders should be booked early for the coming crop of seed from the parent trees of above analysis at Rs.6 per pound containing about 2,000 seeds. *Germination guaranteed.*

Only thornless variety extant, and is not procurable anywhere save from the

MANAGER, ARIENKOW ESTATE,
Shencottah.

In spite of geographical distance, when the naked coolie of Mysore finds work scarce and wages low, he may safely attribute it to the fact that prosperity is smiling upon his antipodean counterpart. This fact is very clearly brought out in the report of the Government of India. From 1876 to 1878 inclusive, Brazil was in political trouble, and the Indian coffee grower made such handsome profits that cultivation rapidly extended. Then came India's trouble in the shape of the coffee-boring insect and leaf disease; and Brazil ruled the market, while unremunerative Indian coffee plantations began year by year to give place to tea-gardens. But in 1889 the pendulum swung the other way once more. Science, says the *Globe*, had defeated the coffee borer and rendered plants immune against the leaf disease in India! *We only wish it had!* While American "corners" in Brazilian coffee and fresh political troubles gradually enabled the price of Indian coffee to rise in 1893 to double the price that ruled in 1885. Brazil is still more or less troubled, its prices, we may add, are now the lowest on record, and the coffee of India still rules high; but assured peace and prosperity in Brazil would promptly send prices down again.

Yield of bananas.

In Vera Cruz bananas are deemed a very profitable crop, the produce all being disposed of at about 1 dollar 25 cents per bunch in the States. The cost of freight, commission, &c., is estimated not to cost more than a dollar, the remainder 25 cents being considered a very remunerative rate. A strictly average crop is put down at about 100 per acre, 300 trees being planted to the same area. The cost of cultivation is very small, as is well known. Three hundred trees per acre is equivalent to 12×12, which is a good distance apart. Only three stems should be allowed to grow per stool at the same time; one, the bearing stem; two, the almost mature stem; three, the young sucker just coming on. The local retail price is about 12 annas or a rupee per bunch; if we allow a reduction of 66 to 75 per cent. for wholesale rates, we arrive at 4 annas a bunch. An acre yielding 600 bunches a year would thus give a gross income of Rs.150 per acre. This is ample enough to cover all expenditure, and yield a high rate of interest on the small capital.

On this basis experiments in drying the fruit for the home market could easily be reckoned out. It would be sufficient to make trials with purchased fruit, taking care that it is of the very finest quality obtainable. If found to pay, banana plantations could forthwith be started. Between the rows of plantains, many other products could be cultivated, such as coffee, cacao, nutmegs, kola, pineapples, &c. These at least for low elevations, while higher up (say from 5,000 to 6,000 feet, which is the limit of elevation bananas can stand) tea, English fruit, jalap and ipecacuanha.

In choosing land for a plantation, it should be remembered that artificial water-supply is a great desideratum. Deep, rich bottom lands and ravines suit the banana well, as shelter from high winds is indispensable.

Selection of seeds.

The following extract from a report of Professor J. C. Arthur, Botanist of the Indiana Station in the United States, will be found of great interest to thoughtful planters. He has been experimenting on the use of unripe tomato seed, and far this is an advantage in causing the plants to pro their fruits earlier and in making them more produc The author arrives at the following conclusions :—

Immature Seed.—The principal deviations arising the use of immature seed are :—(1) A loss of vigour, sh in the smaller percentage of germination, weakness of seedlings, and greater number of plants that die be maturity; (2) failure to recover lost vigour, although plants may, and usually do, produce an abundant harv and one acceptable to the cultivator; (3) the increase o productive parts in proportion to the vegetative pa resulting in a greater number of fruits (seeds altho individually smaller) and the more rapid ripening tha similar plants from mature seeds.

Size of Seeds.—A decrease in nutrition of an organ favours the development of the reproductive parts at expense of the vegetative parts. The decrease in nutri may be brought about by poor soil, bad tillage, germination, &c., all leading to the same general re But it was pointed out that while partly starved pl are, as a rule, proportionately more productive, *i.e.*, per of vegetative part, the reverse is true of plants gr from large and small seeds, for "large seeds pro stronger plants with a greater capacity for reproduc than small seeds of the same kind." These conclusi which are supported by experimental data, stro emphasise the necessity of using only the largest s (that is, screening out and discarding the small seeds) sowing, in order to secure not only the largest yield of g and fruit, but also to retain the vigour and permanency the race under high tillage.

The Exchange tax on tea.

The loss that ensues by mean an artificial exchange to the Ind and Ceylon tea-industry alone, reckoning the great coffee or indigo industries, may be down roughly at the enormous sum of *two million pou sterling*. Sir James Westland is said to boast of hav "saved" the rupee from a fall to the exchange value fine saving truly, that enforces such prodigious loss on country at large. Mr. McEwan, in a forcible letter to *Home and Colonial Mail*, puts the matter clearly enough all to understand: "The total imports of Indian Ceylon teas into the United Kingdom during the calen year of 1897 were 228,000,000 lb., and the average p realised for same in London public auctions was roug $8\frac{1}{2}d$. per pound. It is improbable that, taken over all, profit on production exceeded $2d$. per lb., and allow another penny per pound for freight and charges not s ject to exchange, we get $5\frac{1}{2}d$ per lb. as the average l cost of production at the ports of shipment—Calcutta Colombo. This cost has to be remitted in some manne other to India or Ceylon, and on a yield of 228,000,000 we get £5,225,000 as the crop outlay for the year.

"Taking the average rate of exchange for 1897 as 1*s.* 3 and deducting from same the $9d$. admitted by Sir Ja Westland to be the present real value of the rupee, we h $6\frac{1}{4}d$. per rupee loss, or an aggregate loss during the yea £2,190,000 to the tea industry from exchange alo Roughly speaking, therefore, every penny up or down exchange quotations means £340,000 less or more in revenue from British-grown tea. The calculations have

worked out to a nicety because the complete data for king them do not exist, but the result shown cannot ar from an actual one. The amount of capital invested ea estates in India and Ceylon is somewhere near 000,000, and it will be apparent that those who hold investments are being taxed to maintain a high rate of hange to the extent of something like 5 per cent. per um on the capital value of their holdings."

coffee market.

New crop arrivals continue to come forward so slowly, says the *M. Review* of 22nd ult., that supplies are on a very ted scale, and the auctions have consisted mainly of esirable qualities, at least so far as the home trade is cerned. Larger quantities of Jamaica have been offered, they were principally of ordinary quality, which could be disposed of slowly at rather cheaper rates; the few of medium fetched steady prices. Only small parcels of sta Rica have again been offered, and prices have been l maintained; the finer lots realised rates quite equal to year, while one mark of extra fine sold at a higher e than has been recorded for some years. With a fur- slight fall in the lower grades of coffee this makes a er range of values than has ever before been known. other kinds coloury Colombian has again shown a slight ance, but compared with Costa Rica this kind is still tively cheap. In the terminal market not much has n done, but receipts having continued on a heavy scale, tations have given way about 9*d.* per cwt. The Dutch ding Company have advertised their next sale for Tues- , when 30,300 bags and 30 cases will be offered, against 850 bags and 165 cases at the corresponding sale year.

LONDON COFFEE RETURNS.

—	HOME CONSUMPTION.		EXPORT.		STOCK.	
	1898	1897	1898	1897	1898	1897
For the week ended an. 15, 1898.	Tons. 297	Tons. 295	Tons. 306	Tons. 259	Tons. 10,296	Tons. 8,460
For the 2 eeks ended an. 15, 1898.	594	590	602	467	—	—

he Wynaad and the Planting Industry of Southern India, by NCIS FORD, Re. 1.

he Planting Directory of South India, Re. 1-8.

ea Planting from Seed to Cup in Tamil, with English Transla- . Re. 1.

ketch History of the Planting History of Wynaad, by the late OLPHUS ARTHUR WRIGHT. Re. 1-8.

cience and Coffee, by the late MR. WM. PRINGLE, M.S.C.I., Re. 1-8.

eport of Observations of Injurious Insects and common Crop ts during the year 1883, with methods of Prevention and Remedy, Miss ELEANOR A. ORMEROD, F.R.Met.Soc., &c., Re. 1-8.

Apply to

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LETTERS TO THE EDITOR.

HOUSEHOLD QUERIES.

SIR,—I have two questions for "Planter's Wife," and hope she may be able to answer them early:—

I. Recipe for pine-apple liqueur.

II. Can butter be made out of goat's milk and, if so, how?

Yours,

BACHELOR.

SULPHATE OF IRON.

DEAR SIR,—I sent you to-day a paper on "Plant roots as tillers of the soil," which has attracted much notice in England, as it contains certain principles which may be of interest and service to some of your readers.

Permit me to ask if any of your readers have had any experience of the use of Sulphate of Iron? I have been making some small experiments with it here, and it certainly seems to improve the wood and darken and thicken the leaves of the coffee-trees. I have tried it in Scotland for the turnip crop, but with no result.

Faithfully yours,
ROBERT H. ELLIOT.

[The pamphlet received with thanks; it will be duly noticed in a future issue.—ED.]

MR. QUARME AND HIS LEAF DISEASE CURE.

SIR,—So Mr. E. A. Quarme wishes me to apologise for what he thinks an undeniable reference to his "cure." I apologise willingly, and state gladly that "you are *not* ready, some of you, to try, &c."

It is, indeed, perfectly clear that Mr. Quarme cannot be classed among those long out of touch with latter-day planting conditions, for does he not state, or lead one to infer, that he was a coffee-planter up to such a short time ago as 1880, a paltry 17 years? It is also extremely interesting to note that Mr. T. J. Ferguson and the late Mr. Gordon were shown the "cure," with the result that he was advised to take to Metallurgy.

Of course I have no interest in decrying Mr. Quarme's alleged cure, but if he wishes for success, he will, I hope, submit more conclusive evidences to the value of his discovery than a reference to a bumper crop in the seventies. For bumper crops are occasionally got nowadays, he will be surprised to hear.

It is a pity, on my side of the question, that Mr. Quarme should be ignorant of the change in coffee cultivation since 1880; it proves so conclusively that he has kept himself in intimate touch with South India.

I am, Sir,
THE OFFENDING CORRESPONDENT.

TERRACING *vs.* DRAINS.

SIR,—The letters by "W.P." and "Nemo," in your issue of the 5th instant, were instructive and interesting. I see "Nemo," writing from Kadur, asserts that no ill-effects need be feared by desiccation of the soil resulting from terraces. In fact, if anything, he states that it would do good by promoting heavy wintering. This is all very well, but surely in his experience he must have had experience of spike being burnt off by drought; of young crop dropping off for want of sufficient moisture; and finally of crop refusing to ripen properly, and primaries dying back from the same cause. This being a very important question, I hope he will examine it a little more

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Correspondence and matter for publication to be sent to Editor, this paper, Coonoor.

carefully, and give a revised answer. I quite admit that a heavy wintering is necessary, mind.

About the width of terraces, I am conscious of having failed to notice an important point, which in fact we have all three omitted to take into account. I refer to the space occupied by the natural fall of the excavated soil. For if no stone is available to build retaining walls with, the loss of area must be considerable. Suppose the fall of the land is as great as one in one—and "H. W. P." must remember that such land is often planted up very successfully in some parts of South India—let us see how terracing would work. The natural angle of excavated earth depends of course on its nature; with a loose soil such as is usually found on steep land, the angle, as far as I have been able to judge from casual instances, is no more than one in one. If this be so, it is evident that in making terraces four feet wide, you must cut quite four feet into the solid. In other words, the excavated soil will occupy the same, if not more, space than before it was cut This can, I think, be made clear with a pencil and paper, so that the *whole* of his terrace will be of loose earth. What says "H. W. P." to this? I have read his letter through carefully and cannot find any reference to this point. The area lost for planting is thus the width of the terrace itself. So that planting a single row of trees in every four-foot terrace, they would actually stand eight feet part, which would be absurd. It is possible, though, to have narrower terraces, I think with tea. Coffee would be planted all right in four-foot terraces, if no danger were feared from drought. Tea *might* be worked on three-foot terraces. In both cases the full width of the terrace would have to be cut in the solid, assuming 1, that stone is not used; 2, that the fall of excavated earth is 1 in 1; 3, that the fall of the land itself is 1 in 1. An acre would contain only 35 of 3 ft. terraces, each say 70 yds. long. Reckon this at 35 rupees, or 70 running yds per rupee. Of four-foot terraces an acre would contain 26. At 50 yards per rupee this runs out to about the same. But then an acre of tea 4×6 on three-foot terraces would stand at 4×6 and would only contain 1,814 plants, instead of the usual 2,722 if at 4×4. Coffee on four-foot terraces would really stand at 5×8, or at 1,089 per acre instead of 1,742 if 5×5.

The less the slope of the land, of course the less the loss of area in terracing, but as the steepest lands need terracing most, it is important to note its results first. With stone work available, we could get just double the number of terraces, the cost of which, being half as broad only in the cutting, would remain the same per acre. The cost of the stonework would be, roughly speaking, about 50% more, against which must be set the gaining of the area otherwise lost.

With land of a fall of 1 in 2, the loss of area would be less, even without stone walls. The cost of cutting terraces again would be much diminished.

As I may have gone wrong in my calculations, I should really be obliged by "H. W. P." correcting them.

To the concluding part of his letter, though, I must take exception. Surely it is easy to understand that clearing silt from drains is far easier work than cutting into even surface soil, which is full of matted root and stumps? If he would take my advice and consult his Peermaad friends (whom "Nemo" seems to think are not located in South India! as to the relative cost of the different estate works, he would learn a lot. And having learnt it, he would be able to give us really valuable hints. His assertion that wash cannot be stopped by interlinear drains or trenches is one which he should try to explain. With his terraces, half of which, even according to his own showing, are loose earth, he has the rainfall on each terrace *plus* the flow from above, which on a ten-inch night must be enormous. With drains or trenches every row of plants, I have a fall surface, sloping it is true, of four to six feet only, accordi the distance apart of the trees. Can there be any appre wash in that distance? Besides, what wash there is, is ca in the drain, if of a good gradient.

In conclusion, I would ask "Nemo" to detail his syst drainage, which he asserts cannot prevent wash on steep as my experience of drains is just the opposite. By the I may as well change my *nom-de-plume*, as I think that "1 is not so apt a term in my case as "1 in

GENERAL ARTICLES.

PLANTING IN JAVA AND CEYLON.

INTERVIEW WITH MR. FRANK ADAM.

As our readers, says the *Ceylon Observer*, are aware, one o visitors to Ceylon at present is Mr. Frank Adam, who is very la interested in coffee planting in Java. Mr. Adam came here i beginning of December last, and since then he has been trave about the Kelani Valley, Kandapola, and Uva districts. His will extend till the end of February, and during that time he w some more visiting in the hill and low country. He was the fi interest Ceylon capitalists in coffee planting in Java—men su Messrs. G. A. Talbot, H. J. Starey, D. & J. R. Fairweather, W Wood, Rutherford, Reid, &c., and the Glen Nevis Company, st in 1892-93, is doing so well that those interested are, along Mr. Adam, now engaged in taking steps to float a Company he start a further block of similar land in the same district of Ja the Glen Nevis Company. That and the extension of this Nevis Company, he explained to an *Observer* representative interviewed him to-day, was the object of his visit to Ceylon.

SIGHING FOR THE COFFEE DAYS.

Asked about his impressions of Uva, he said:—I have met a many old coffee planters, and one and all of them sigh for the c days again in preference to those of tea. With regard to coffee I speak with a certain amount of reserve, because the situation o island, the soil, and the climate are entirely different from Java my impression from what I have seen, and from what I have h from old planters, is that one cause for the decadence of coffee is that the plant was forced and grown under unnatural c tions; that under those same conditions the tree in the magnif volcanic and humus soil of Java would have a chance of a longe and a chance, with proper remedies, of recovering itself. From I have seen, the soil here is not altogether what coffee loves, b I have said I speak with some reserve. When I say that coffe been forced here, I mean that it has been grown without shade. Java we grow the coffee entirely under shade. In the second until I came here, I never understood the meaning of what Ce men said when they talked of pruning and handling coffee. Th me is another means of forcing the tree, and thereby taking as m as possible out of it; and while it gave good crops as long lasted, that rendered the trees less able to withstand any ou attacks. Our

METHOD OF CULTIVATION IN JAVA

is to have no topping at all on high elevations, while on l elevations we top from 5 to 6 feet, leaving a flat surface on the u portion of the tree, and we do not go in for such an unna process as pruning and handling. That is in contrast with wh have seen in Uva, where they top the tree at about 2½ feet and l the head of it exposed to the full force of the sun and the Another thing I notice is that the coffee, or what remains of coffee, is growing in some places on slopes amongst boulders stones. Uva planters seem to fancy that the worst spots for gro coffee are in the sheltered places at the foot of slopes. In such steep slopes abounding in boulders and stones would be lo upon as unplantable, and some of our best coffee in Java is grow the very spots at the foot of slopes, which Ceylon planters, as fa I am able to judge, seem to condemn.

THE SOIL.

Then in Java, the soil, especially where we are, is composed

MILLIE & REDMOND, late P. THOMPSON & CO., *Ootacamund, Engineers and Contractors.*

the most part, of deep vegetable humus mixed with volcanic ash. Going through the jungle, one is able in most places to put a common walking stick up to the head into the ground without resistance. Whereas it seems to me in Ceylon a good deal of the fertility of tea is owing to the climate, we in Java, in addition to our having a good climate, have an advantage in the superiority of our soil.

What Coffee can do in Java.

I will give you an instance of what coffee can do in Java. The Pioneer Company—that is the Glen Nevis Company—started by Ceylon people was first cleared or planted in 1892-93, and the last clearing was completed in 1894-95. At the end of 1897 over a cleared area of about 615 acres under coffee there was produced a crop of the gross value of £220,000 sterling. The amount yielded to the end of 1897 from the first year's clearing (1892-93) showed the equivalent of production of 15 cwt. of coffee per acre. At the end of the third year the land produced on the first year's clearing 5 cwt. an acre; at the end of the fourth year 7½ cwt. an acre; and at the end of the fith year (1897) it produced the equivalent of 15 cwt. an acre. The proprietors are so well pleased with the results that they are putting all the profits into further clearing, the estate having a large jungle reserve. As regards

The Rainfall

it is very well distributed, not one month being without a certain proportion of rain. The heaviest rainfall is from October to March inclusive, and the average annual rainfall is from 85 to 87 inches. As regards

The Temperature

the observations taken at six o'clock in the morning, mid-day, and 8 P.M., in the verandah of the Superintendent's bungalow showed a range at 6 A.M. of not lower than 67 and not higher than 72 Fah.; at mid-day not lower than 75 and not higher than 84; and at 8 P.M. not lower than 72 and not higher than 78.

Concessions by Government

are not granted to the outside public, but only to Dutch subjects and foreign subjects resident in Netherlands India. The lands acquired by the Ceylon planters were, therefore, obtained through myself as a resident, having had 23 years' experience of Java. The conditions upon which the Government give the land are very fair, but they are very slow in making grants. They alienate no land. The land is given out by the Government on a 75 years' lease, and if nothing is said to the contrary at the end of the lease, it is renewable, so that it is practically ownership that one receives. The Dutch law allows the mortgage of these lands in the same way as freehold property, subject of course to the conditions of the occasion. No tax of any kind is payable until the end of the fifth year, when an amount is levied, which varies, but which may be put down at a maximum of one Java guilder (equal to 1*s.* 8*d.*) per bouw, which is equal to 1¾ acres. No obligation is imposed as to bringing the land under cultivation. In British Colonies you are obliged in most cases to undertake to bring so much under cultivation within a certain time, but in Java there is no such stipulation. As regards other taxes there is no tax levied, until the estate comes into profitable bearing, when the usual income tax is levied, which is somewhere about 2 per cent. The Government reserve to themselves all rights to minerals on the lands, and also the rights to open roads and water-courses, subject to compensation being paid to the concessionaires. They will not permit the manufacture on the land of salt, which is a Government monopoly, or the cultivation of the poppy for opium, which is also a Government monopoly.

Report by a Ceylon man.

A well-known Ceylon man, who is also interested in coffee in the Straits—I refer to Mr. Donald Mackay—was down in Java, and after seeing the lands reported most favourably on them. With regard to Glen Nevis, he said that the soil, situation, and growth of the clearings were far beyond that of any plantations he had seen in many of the countries with which he was acquainted, and the reality was better by far than the descriptions of his Ceylon friends had led him to expect. The sheltered situation, encircled on all sides by mountain ranges, the uniform richness and depth of the dark volcanic soil, and the luxurious growth of trees from two and-a-half to four and-a-half years' old could hardly be excelled, if it could be equalled, by Arabian coffee in any part of the world. The Liberian coffee trees had made fine progress. As regarded the cacao trees, he was inclined to think from their appearance that they might do better next year (1898) than progress had led planters hitherto to expect. So far as his information went, the climate of the district generally was comparatively healthy; there did not appear to be much malaria; and the outbreaks of cholera which had been recorded were due more to preventible causes, such as carelessness of the coolies themselves, than any unhealthiness arising from situation, soil, or climate, or water. Continuing, Mr. Adam said :—The total acreage planted on Glen Nevis and the neighbouring estate by the same proprietors up to the end of 1897 was about 1,400 acres, of which two-thirds are in bearing. Off this acreage the gross value of the crop for 1895, 1896, and 1897 was £35,000 sterling.

Arabica and Liberian Coffee.

Our experience is that we obtain much more favourable results from Coffee Arabica than Liberian coffee. Liberian coffee has been planted in these concessions experimentally, but our attention is devoted to Arabica. Liberian coffee experimentally is doing very well, but the Arabian is what we depend upon. We argue that as long as we can find good land to grow Arabica, it is better to grow that variety. As a fancy coffee it has very few competitors and we think it much better to leave alone Liberian which may be classed among the coffee of the many and not of the few. The wisdom of our doing so is evident from the fact that during the recent crop in coffee, such rough varieties as those of Brazil, Santos, Liberia, &c., experienced a very heavy fall, while the fall in fancy coffee, such as Java, Ceylon Plantation, Guatemala, was not appreciable. In fact, since I came to Ceylon, I have seen a quotation of bold, coloury, yellow Liberian in London at 44s. per cwt., while Ceylon Plantation, which is very much the same preparation and quality as Java private estate coffee, was quoted in the same market report at 100s. to 102s. Comment upon that I think is needless.

Geography.

Java, for agricultural purposes, is practically divided into two portions. The Western portion, which is nearest Batavia and the main lines of sea communication, is the part which is mostly seen by the globe-trotter. The climate of this part is very humid, and the soil, upon which tea in the uplands is principally grown, is stiff and red. The east end of the island, which very few people take the time to run down and see, and which is remote from the main steamer lines, is the Garden of Coffee in Java. There is direct railway communication from Batavia to Djember quite close to the extreme east, and the line has been surveyed for a further extension from Djember (tunnelling through a mountain range) to Bangœwangte, one of the principal stations of the Eastern Telegraph Company and the most easterly port in Java. It is from that port that the Glen Nevis coffee is shipped, the distance between the estate and the port being 38 miles, 25 of which are over a good Government post road and the balance over a good riding track. As regards

The Population

it consists in the first place of Sundanese (Aborigines) inhabiting the west or tea districts of the island. They are less hardy than the inhabitants of the east end of the island, who are composed of Javanese (also indigenous) and Madurese, who crossed over to Java from the island of Madura immediately adjoining. There are also Malays in Java on the western sea coast, the descendants of Malay pirates in days gone by. These people are not employed as labourers, but as household servants, coachmen, &c. The total of the population is about 23½ millions. The labour supply is very good. We have our own labour difficulties, like the planters in every other part of the East, but these have been reduced to a minimum. When Sir Stamford Raffles was in Java in 1810 to 1812 the population was somewhere about six millions, and the figures now show how the natives have increased and multiplied under the Dutch rule. In regard to

The working of the estates

we find it better to have that done by Dutchmen and according to Dutch methods with an Englishman at the head of the whole affair. The system works better than employing Englishmen who are not acquainted with Dutch methods, customs and language. The wages of a cooly on a coffee estate average about 40 to 45 guilder cents per day.

Exchange

is on a bi-metallic basis, and therefore we do not have the fluctuations to which silver countries in the East are subjected.

THE ROADS

are amongst the finest in the world, and for the most part beautifully shaded on both sides with tamarind trees.

OTHER PRODUCTS.

The land grows sugar very well indeed; but owing to the continental bounties during the last few years, and the change in the tariff duties of America, that industry is in a very precarious state. Indigo grows very well in mid-Java on a limited area. I may mention that at an agricultural exhibition in Calcutta some seven or eight years ago, I remember to have seen that five prizes were given for indigo. The first, second and third fell to Java and the third and fifth to India. Java also produces tobacco, which is grown on a limited area naturally on account of the humid climate which it, like tea, requires. It also grows tea, as I have indicated, also cacao, vanilla, nutmegs, cinchona, &c. In the west of Java there is some of the finest table rice in the world, and throughout the whole island there is the ordinary native rice. Of late years petroleum has been discovered, principally in mid and east Java, and some of the Companies have obtained splendid results.

IN CASE OF FIRE.

YOUR house takes fire. What burns first? The lightest and most inflammable stuff, of course—furniture, doors, shelves, floors, panelling, and other woodwork. If it is a stone or brick house, the walls will probably remain standing—a melancholy sight.

Were not this a principle of universal application, Mr. Meddings would never have compared himself to a skeleton, as he does in the letter to which your attention is now invited.

"In the autumn of 1891," he says, "I fell into a low, weak state of health. My ordinary energy appeared to have gone out of me. I always felt tired and languid, and couldn't account for it. Nothing seemed to rest me. I was as tired in the morning as when I went to bed. I had a bad taste in the mouth, my appetite was poor, and after meals I had a pain at my chest and left side.

"I was in this condition until the 14th of March, 1892, and then I had to give up work. The reason was, I was too weak to work. In fact, I was so weak that it was about as much as I could do to walk across the floor. Besides this I had a dry, hacking cough; and at night I sweat so the bedclothes were wet. Sometimes during the day cold, clammy sweats would break out all over me.

"I lost flesh rapidly, until I was like a skeleton. My muscles seemed to be shrunken and withered. There was no feeling of warmth in me; it was as though my blood had gone cool and thin. I was too feeble and helpless to wash or dress myself, and people said I was wasting away, as though they expected to see the end of it presently.

"I consulted two doctors and they gave me medicine, but it did me no good. One day my aunt, Mrs. Benton, of Francis Street, Walsall, called, and in the course of talk she said that the medicine that did her good when she was ill was Mother Seigel's Curative Syrup. Although it didn't look reasonable to believe that it could cure a case as bad as mine, nevertheless my wife got me a bottle from Mr. Grove, the chemist in Park Street, and I commenced taking it. In a few days I found myself much better; my appetite was better, and I had gained a little strength.

"To make the story short, I kept on taking the Syrup and continued to get better. As soon as I could digest my food the night sweats and the cough abated, and in a few weeks I was able to go back to my work. That is two years ago, and since then I have been in good health, for which I have to thank Mother Seigel's Syrup. (Signed) Arthur Thomas Meddings, 115, Farringdon Street, Walsall, March 6th, 1894."

In a fire, as we said, it is the light, inflammable stuff that burns first. That's why Mr. Meddings got to be so ghastly thin. The flesh or fat is the fuel of the body. In health it keeps up the warmth and furnishes the power. And to keep up the fuel we must eat.

Now, disease is a conflagration; it tries to burn the house up, and often does it. And it always burns the flesh up, more or less of it. The fat goes first, the muscles, &c., afterwards. That's the way of it. About that time *the tenant moves out.*

Our friend was well on towards that point. But it wasn't lung disease that ailed him, albeit he had the cough and the sweats. They go also with indigestion and dyspepsia—his real and only malady. He got feeble and thin because his disease wouldn't allow the stomach to digest food. Hence he consumed all the flesh he had stored up, and then (luckily for him) he began to take Mother Seigel's Curative Syrup, which set his stomach and liver right, and gave his victuals a chance to feed him.

All the same, it is dangerous to let a fire get headway. When it is in your body, quench the first spark with Mother Seigel's Curative Syrup.

MARKET REPORT.

COFFEE.

Messrs. R. J. Rouse & Co.'s Weekly Coffee Report (January 28, 1898) says:—The moderate supplies catalogued this week met a fair demand and were mostly sold at previous rates for ordinary qualities, but the bidding for the colory grades was very keen.

Barely 700 bags East India were offered consisting chiefly of the first shipments of Coorg; bold colory parcels realised very full values, the remainder selling at unchanged prices.

Central American kinds show little change for medium description but fine blue Costa Rica attracted keen competition and was easily disposed of at full rates.

A quiet tone has prevailed in the Terme market and fluctuations have been unimportant, quotations at the close being 3d lower than our last.

Messrs. Wm. Jas. and Hy. Thompson's Report of the Colonial Markets for the Week ending January 26th, 1898, says:—Bank rate 3%. Bombay Exchange closes at 1s. 3⅞d. Brazil Exchange 6⅞d. Rupee paper 3½% 63⅛. Silver 26 3/16d. per oz.

The spot market has been rather steadier throughout the past week although very quiet, the demand for new crop East India and Costa Rica being very good, and extreme prices being paid for fine. The quality of new crop Coorg and Mysore is, so far, unsatisfactory. Brazil markets are flat and lower. Daily receipts averaged 9,800 bags in Rio, and 10,300 bags in Santos.

At the Dutch sale held yesterday in Amsterdam 32,312 bags and 33 cases were offered and sold at an irregular decline of 2 to 4½ cents except for fine, which sold dearer. Good ordinary Java sold at 34 cents against 35½ cents at the previous sale in November last.

Futures have ruled weak and close 1s. 3d. to 1s. 6d. per cwt. lower, viz.:—Good average Santos in Havre, March delivery, fcs. 36.25, in Hamburg pf. 29¾, and No. 7 low ordinary Rio in New York $5.60.

To-day's London official quotations are:—

	Jan.	March	May	July	Sept.	Dec., '98.
SANTOS ...	29/9	29/9	30/3	30/6	30/9	31/3

We quote:—

Ceylon, mid. to good mid.	95/@105/	Costa Rica, mid. to fine...	77/@108/
Do. small to low mid.	75/ „ 93/	Do. ord. to low middling.	53/ „ 76/
East India, mid. to good mid...	78/ „ 93/	Jamaica, good to fine ord.	47/ „ 58/
Do. small to low mid.	65/ „ 76/	Do. greenish to fine colory...	70/ „ 125/
Guatemala, mid. to fine...	75/ „ 100/	African ...	28/ „ 30/
Do. good ord. to low mid...	55/ „ 73/	Columbian, ordinary ...	38/ „ 43/
Salvador, good ord. foxy greenish...	45/ „ 49/	Do. good ord. to low mid...	45/ „ 70/
		Do. mid. to fine...	71/ „ 98/

Receipts in Brazil to 26th January compare as follows with previous years:—

	1897-98. Bags.	1896-97. Bags.	1895-96. Bags.
RIO	2,940,000	2,416,000	1,771,000
SANTOS	4,762,000	3,844,000	2,544,000
	7,702,000	6,260,000	4,315,000

Auctions:—

519 bags East India { 80 bags Mysore, new crop ... @ 58/6 @ 108/; 310 bags Coorg, new crop ... „ 57/6 „ 104/6; 65 bags Wynaad, new crop ... „ 57/6 „ 98/6; 64 bags old crop bought in.

1,241 bags Costa Rica, new crop, part London cleaned, chiefly sold ... ... „ 42/6 „ 114/6

26 bags Nicaragua, new crop, London cleaned ... „ 50/ „ 91/

53 bags Guatemala, new crop, part London cleaned... „ 47/ „ 85/

47 bags Bolivian, London cleaned, bought in.

16 bags Mexican bought in.

8 bags Peruvian bought in.

5 bags Vera Paz ... ... @ 56/6 @ —
903 bags Columbian, part London cleaned, chiefly sold. „ 36/6 „ 97/6
77 bags Nyassaland triage sold.
50 bags Liberian Java bought in.
80 bags Liberian Johore ... ... „ 40/ „ —
27 bags Ceara bought in.
26 bags Bahia bought in.
362 barrels 11 bags Jamaica, part London cleaned, chiefly sold ... ... „ 43/ „ 98/6
46 packages Mocha bought in.
On Quay Terms :—
251 bags washed Rio bought in.
250 bags washed Santos bought in.
191 bags Santos bought in.
75 bags Maragogipe bought in.

TEA.

Messrs Gow, Wilson and Stanton's Indian, Ceylon, and Java Tea Report, dated January 28th, 1898, says :—

QUANTITY BROUGHT TO AUCTION IN LONDON

FROM 1ST JUNE TO DATE.

	Indian.	Ceylon.	Java.
1897-1898...	1,125,799 packages.	775,580 packages.	27,701 packages.
1896-1897...	1,143,175 „	741,755 „	25,211 „

106 *pkgs.* INDIAN
544 „ CEYLON
922 „ JAVA
} Total 66,672 packages were offered in public auction this week.

The Home Consumption of all tea during the year 1897 was made up of % Indian and Ceylon tea, 7% of China. and 2% from other countries. rcentages of British grown tea continue to increase, while those of na are becoming gradually smaller.

Quantity of tea (in lbs.) on which duty was paid at all Bonded Warehouses in the Kingdom from 1st January to 31st December.

	1897. pctgs.	1896. pctgs.	1895. pctgs.	1894. pctgs.
dian	...124,534,194 54	122,941,098 54	116,343,314 53	116,965.653 55
ion	... 85.493,554 37	80,294,475 35	74,023,809 33	71,570.078 33
na	... 17,242,247 7	19,831 680 9	26,201,374 12	22.980,706 11
er Countries	4,129,783 2	4,718,256 2	5,231,640 2	2,824,327 1
al lbs.	...231,399,778	227,785,509	221,800.137	214,340,763

Indian. The market experienced considerable relief through the ter auctions held this week, only 45,006 packages being brought ward. The strain placed upon it by the offering of 121,776 packages fortnight, naturally caused irregularity in prices with a somewhat ier tone. There has been sufficient elasticity in the market to recover m the slight depression, in response to the reduced supply, while the sent very low rates are inducing buyers to operate with more fidence, now that so much of the recent accumulation has passed ough the auctions.

Week's av. of Tea sold on Garden Account, 1898, 35,252 pkgs., av. 8·05d. 1897, 34,548 pkgs., av. 9¼d.

	1898. Pkgs.	1898. Price.	1897. Pkgs.	1897. Price.	1st June to date 1897-8. Pkgs.	1st June to date 1897-8. Price.	1st June to date 1896-7. Pkgs.	1st June to date 1896-7. Price.
Assam ...	15.941	9·21	16,325	10¾	399,216	10·01	390,899	10·11
Cachar & Sylhet...	9,683	6·87	8,504	7½	214,066	7·02	201,073	7·44
Chittagong ...	—	—	102	6¾	4,834	7·19	2,764	7·57
Chota Nagpore ...	—	—	42	7¼	1,306	5	1,275	4·92
Darjeeling ...	1.946	9·68	1,207	10¼	57,390	11·15	51,027	1/·21
Dooars ...	5.974	6·96	5,920	7½	98,378	7·59	102,614	7·52
Kangra, &c. ...	277	6·12	348	7	6,883	7·23	4,912	7·18
Neilgherry ...	54	8·25	237	5½	5,178	7·08	3,163	6·84
Terai ...	233	7·85	354	7¾	18,598	7·19	11,520	7·14
Travancore ...	1,144	6·89	1,509	7¼	23,653	6·45	21,170	6·94

Total sold on Garden Account 1st June to date 1898, 829,010 pkgs., av. 8·89d. 1897, 790,417 pkgs., av. 9·04d.

Comparative prices of Indian Tea in London :—

		1898.	1897.	1896.	1895.
DUST.	(Fair ordinary, dark liquor) ...	3¾d	4¼d	4¾d	5d
FANNINGS.	(Red to brown, strong rough liquor) ...	4¼d	4½d	4d	6d
BROKEN TEA.	(Brownish to blackish, strong liquor) ...	6¼d	6¼d	6d	7½d
PEK. SOUG	(Blackish greyish, useful liquor).	6½d	6½d	6½d	8¾d
PEKOE.	(Greyish to blackish, some tip, useful liquor)	7½d	8d	7¾d	9¼d
PEK. SOUG.	(Blackish greyish. inferior liquor).	5d	5d	5¼d	7½d
PEKOE.	(Blackish greyish, some tip, inferior liquor) .	5½d	5¾d	5¾d	8d

Ceylon. Only 20,544 packages were brought forward, being a slight reduction on last week's quantity. Competition for all grades was brisk and quotations were fully maintained with a good general demand for all descriptions. Average for week 8·16d., against 8d. same period last year.

Ceylon Tea sold on Garden Account 1st January to date 1898, 83,688 pkgs., av. 8·26d. 1897, 87.409 pkgs., av. 8d.

Comparative prices of Ceylon Tea in London :—

		1898.	1897.	1896.	1895.
PEKOE SOUG.	(Ordinary leaf ; fair liquor) ...	6½d	6d	6½d	8¼d
PEKOE	(Ordinary leaf, little twist ; fair liquor) ...	7½d	7¼d	7¾d	9½d
PEKOE SOUG.	(Rather bold leaf ; indifferent liquor) ...	4¾d	5d	5¼d	7½d
PEKOE	(Somewhat bold leaf ; indifferent liquor) ...	5¾d	5¾d	5¾d	8d

Java. The 1,022 packages comprised 711 of direct import, the remainder being teas being brought over from Holland and second hand parcels. No perceptible change was noticeable in the market, bidding continuing fairly active. 9,672 packages are to be offered in Amsterdam on the 2nd February. 1,307 packages are advertised for sale in London during the next fortnight.

Bank Rate 3 per cent. Exchange on London three months sight :— Calcutta 1/4 3/16 Colombo 1/4 3/16.

PUBLIC SALE OF SOUTH INDIAN TEA.

(AVERAGE FOR ALL INDIA 8·05*d.*) *January 28th.*

GARDEN.	Total.	Average.	Broken Org. Pek. or Flowery Pekoe.		Pekoe and Unassorted.		Broken Pekoe.		Pekoe Souchong.		Broken and Souchong.		Fannings, Dust, and Various.	
	Quantity	Price.	Quantity	Price.	Quantity	Price.	Quantity	Price.	Quantity	Price.	Quantity	Price.	Quantity	Price.
ilgherry ...														
danaad ...	54 p	8¼	...	...	20	8	34½c	8¾	...	...	...	...	...	...
ath Wynad ...														
dbarie ...	42	5½	30	5¾	12	4¾	...	...	...	...	...	...	...	...
avancore ...	**1144 p**	**6·89**												
rfield ...	109 p	6¼	15 p	7	33	6¼	25	7¼	21	5¾	10	5¼	5	3½
pmary ...	203 p	7	134	7 8¼	32	6	...	...	...	...	...	...	37 p	3 6
eld T Co ...	29	6½	...	...	29	6½	...	...	...	...	...	...	...	...
nan Dev Hil CA.	135½c	7¼			30½c	7¼	49½c	8¾	30½c	6½	...		26½c	7
vancr TC BA	123	7¼			98	6½	95	8¼	25	5¾	34	5¼	171	4¾7¾
mbenard	245	6¼	102	6¼7½	51	5¾6	43	7	36	5½	...	...	13	5¼

GORTON SHIRTING.

FINE Gorton Shirting, F. No. 4, in pieces of about 80 yards, at 4½ annas a yard.

A. D'ROZARIO AND CO., Ld.,
MADRAS.

W.

CENTRAL HOTEL,
INFANTRY ROAD, BANGALORE.

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PLANTING OPINION.

A WEEKLY JOURNAL

WRITTEN BY PLANTERS FOR PLANTERS.

VOL. III.] COONOOR, SATURDAY, FEBRUARY 26, 1898. [No. 8.

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ADVERTISEMENTS.—From the 1st October, 1897, the charge for line advertisements will be: 4 as. per line for the first, 3 as. for the second, and 2 as. for the third and succeeding insertions. Five-line advertisements from Subscribers will be inserted for three issues for one rupee; non-Subscribers will be charged two rupees.

DOMESTIC OCCURRENCE.—The fee for inserting a domestic occurrence will be *One Rupee* for each insertion, payable in advance.

N.B.—Remittances should be sent to the Manager, "Planting Opinion," Esplanade Row, Madras.

IMPORTANT NOTICE.

The Business Offices of this paper having now been removed to Madras, all remittances should be made payable to the Manager of *Planting Opinion*, 3, Esplanade Row, Madras, who will also attend to all advertisements, &c. Letters to the Editor should be addressed to Coonoor, as usual.

SEASON REPORTS.

NOTICE.

TO OUR SEASON REPORTERS.

Please post your next reports to reach Madras on Friday, the 4th March, 1898.

Season Reports should be sent to the Printers, Messrs. Addison & Co., direct, and not to *Planting Opinion* Office.

S. E. Wynaad.

Devala, 23*rd February*.—*Weather.*—Since the 20th instant it is very cloudy in the morning and evening, and during the day very windy. *Crops.*—The recent rain brought the spikes forward, which are lingering for rain.—*Health.*—Fair. *Labour.*—Sufficient.

Coorg.

Polli Betta, 23*rd February*.—*Weather.*—Fine and clear with blazing sun and east wind at times. Not much dew. Just about what the weather should be at this time. *Crops.*—Gleaning still in hand. Spike for next season fine and healthy. Will hold out for a good time yet. Coffee seems to have wintered heavily and is looking dryish in parts, but will probably crop all the better for this. *General Health.*—Fever, coughs, colds and dysentery prevalent, but not to such an extent as previously. *Interesting Item.*—Rifle meeting begins 1st March.

Nellampatty (British).

23*rd Feb.*—*Weather.*—Every morning for the last fortnight it has been very cloudy, and on the 15th rain fell all over the district. Some places got over an inch, I hear, but I had only 35 cents here. Land wind has started again this morning and may "blow away" the rain, which seems very near. In a great many cases the last rain has brought on three-fourths of the spike, and several places expect to have the blossom out this week, while one or two have already had a blossom. Prospects are not so good as they would have been had rain held off for another ten days, but still there is not much cause for tall "cussing" yet, and with any luck we may do well. *General Health.*—Fair. Shower brought fever as usual. *Labour.*—Places that had not before paid off, are doing so this week and the district is very empty.

Kotagiri. NILGIRIS, 24*th February.*—Nice blow of flower out, very good on many estates, notably Kil Kotagiri side; it worked up for rain again, but fortunately it has kept off since last report, and by the end of this week blossom should be set and safe everywhere this side.

THE AMERICAN COFFEE CROP.

DESPITE the almost unique qualities of East Indian plantation coffee, the enormous crops of South America during the last two years are having an undoubtedly depressing influence on the market for all grades, even for the finest. There seem no grounds for supposing that the pressure on consumption will cease, for the great and successive increase of the American crop is due to young plantations coming into bearing, and not to a succession of extraordinarily fortunate seasons, as has been erroneously supposed in some quarters.

The world's demand is now far less than its supply, and as a consequence prices have fallen, for American coffee, as low as, if not lower than, they have ever been. A low range of prices must inevitably increase consumption, but the immediate future is not rosy.

The well-known New York brokers, Messrs. W. H. Crossman and Bro., in a circular issued at the close of last year, have some interesting and weighty remarks on the situation. In comparing the present market with the almost equally low one of 1884, they state the Brazilian price averaged 23 milreis from 1884 to 1886:—

"The planter now gets in excess of 48 milreis per bag, and it will require some time before production at this rate becomes unprofitable. The milreis, at the exchange rate to-day of 7 pence, serves just the same purpose to the Brazilian planter as it did at 27 pence exchange, for the payment of interest on mortgages, debts contracted in Brazil, etc. The railroad freight for coffee to the seaports, while much higher than before, is still payable in milreis, and has not advanced in proportion to the low exchange. The cost of labour, which, relatively, should have quadrupled with the depreciation in the currency exchange rates, has only doubled, and it requires a lower price in milreis before planters will stop harvesting what is grown.

"We are informed that the average cost of production in Rio is about nine milreis per arroba, which is 37 milreis per bag of 60 kilos. The average price for coffee, which in quality is better than Rio No. 7, to-day is over 50 milreis per bag, and it is generally admitted that in Santos the cost of production is on a lower scale than in Rio.

"Apart from Rio and Santos, production of coffee in other parts of the world continues to increase, but not so rapidly. Victoria and Bahia are probably producing treble the quantity they did six years ago. The production in mild coffee countries is increasing slowly, but surely. We figure that the arrivals of mild coffees from 1st July to 1st December, 1897, in the world, exclusive of Rio and Santos kinds, are 1,387,979 bags, compared with the same period in 1896, 1,269,796 bags. Reports sent to us from Venezuela are favourable for a larger crop than last year. Costa Rica sends about the same sort of report. Salvador will give at least fifty per cent. more than last year, including what was left over of the previous crop. Guatemala will give probably less. Mexico, the reports are contradictory, but the average information points to a yield about the same as last year. Java, the present crop is estimated at about 400,000 Government Java, against last year 265,000 piculs.

"But the detailed reports from all of these countries are usually colored and unreliable, until the merchandise is shipped down to the seaports, but it is safe to count upon a slow yet steady increase. Speaking generally, we think that, including Victoria, Bahia and Ceara, it is fairly safe to calculate a total of 5,500,000 bags for the current season. The idea that the entire coffee crops will not be gathered in consequence of the price is one that we discredit *in toto*. For many years past we have pointed out the fact that coffee culture gave a profit of from 100 per cent. to 200 per cent. according to the different countries. Even if this should shrink down to the act cost, planters will be obliged to gather the crops which provide th only revenue and means for paying for their necessities. With exception of the high-priced plantations, bought on speculat during the higher range of values, we believe that in all produc countries coffee is still being grown at a fair profit—in Brazil pro bly from 25 per cent. to 33 per cent., and the larger quantities t now gather compensate for the lower price they sell at."

Viewing the Coffee market as a whole, in face of largest visible, invisible and prospective supplies the wo has ever seen, we are forced to the conclusion that we in an era of over-production. The end, moreover, is yet.

With reference to plantation coffee, it is only too lik that a steady, though moderate fall, will take place in except the finest grades. To improve their grade of cof in methods alluded to elsewhere, is a point, therefore, t needs the most urgent attentions planters can bestow.

NOTES.

"The Volunteer." We have received a copy of t new Calcutta journal, which, as name implies, is devoted to the interests of volunteering India. It promises to be a readable journal enough, a Volunteers will probably find their Rs.5-12—its tiny yea subscription—well spent.

Duars planting method. The Duars, as some of our re ers may not know, is a huge t district bordering on Assam, famous for its huge yie and huger plantations. The methods of planting a working generally would form an interesting chapter planting in excelsis. Some of the nurseries contain many as two to three hundred maunds of seed in the ye sufficient to plant up one to two thousand acres. To wa these, steam pumps are used for economy's sake.

Borneo plantations. In a review on agricultural ent prize in North Borneo for the p year, we note that tobacco prices have been quite up expectation. Coffee planters are not happy, as the vari grown is chiefly Liberian, which has fallen in price direct sympathy with the market for Americans. Gamb the "new" tanning product, is doing well and still ma tains its price. Cocoanut cultivation is growing in fav while hemp, rhea and pepper are also being planted

The new style of planting. Some months ago we drew attention of our readers to strong opinion held by Profes Wallace on the inadvisability of planting fruit-trees holes or pits. It has since come to our notice that one the most successful and scientific planters of South In has, within the last few years, given up hole-planting t large extent. In lieu of pits, he has the whole land over at a cost, for coffee, of under double the usual pitt rates, while for tea it is actually cheaper. An Ameri authority on orange culture says: "I have found few pla where fruit trees can be planted with any hope of succ in holes. In a clay soil or clay subsoil planting in ho will be as bad as planting in an iron pot, and I have doubt that the dying back of comparatively young trees the yellowing of leaves must be attributed to that

system of digging a hole in the soil as hard as a sheet, planting the tree and filling the hole with water. The ground should be prepared by ploughing and subsoiling as deep as possible—say 18 to 24 inches—during the rains, and the clods broken up and the land levelled before planting."

Tea market.

Indians.—With reduced supplies and a fairly active demand, writes the *P. M. Review* of 29th ult., the market has been stronger for the medium and lower kinds, with a distinctly firmer tendency for the better grades. As the public sales will probably be on a smaller scale than during the past few weeks, prices may further strengthen a little later on. The large assortment of useful priced tea now on offer at moderate values has stimulated purchases on a considerable scale, and the trade are undoubtedly pursuing a safe course in buying ahead of their immediate requirements. It is rarely that Indian teas can be obtained on such favourable terms by the retailer as is now the case, and this should materially stimulate the consumption, especially as exceptional value for the more popular canister can be supplied to the consumer. There are already indications of the season coming to a close, as some final invoices have already been catalogued, and from recent advices it appears that the total yield will not materially exceed that of last season. The quantity brought forward at the public sales comprised 45,126 packages against 62,649 in the preceding week, and 6,082 were withdrawn. The bidding throughout was active for all good descriptions, more particularly Assam growths, those taken out of sale being poor liquoring sorts of Calcutta purchase.

Light Railways for the Colonies.

In the paper which he read on the 1st inst. at the Royal Colonial Institute on "Light Railways for the Colonies," Mr. Everard R. Calthrop, C.E., gave reasons in support of his opinion that cheap and narrow gauge railways are best adapted for opening up territory in the shortest time and at the least possible cost, while possessing at the same time a large carrying capacity. Without overloading his matter with figures, he set forth calculations, based on practical experience, which distinctly made in favour of light railways. As an example, he referred to the Barsi Light Railway in India, in the construction of which he followed out the principle that the substantiality of permanent-way depends solely on the weight per yard of rail having a proper relation to the maximum weight per axle of the rolling stock to be placed on it. The Barsi Light Railway—the cost of building which, including rolling stock, was about £3,000 per mile, the work being all of a substantial and permanent character—was only opened for traffic in March last; but during its first half-year of working the operating expenses in India were just below 50 per cent. of the gross receipts, and the net profits earned were in excess of 4 per cent. on the capital of the company, notwithstanding an almost unexampled combination of troubles, including plague, cholera, and famine with their ruinous effects upon traffic.

Cheap nitrogen.

We can always find room for paragraphs on our nitrogen supply. When it is reckoned that, if leguminous trees were grown in or amongst our tea or coffee, we should gain quite a hundred rupees of nitrogen per acre—well it seems worth considering. Says a Ceylon exchange:—"Numerous experiments and investigations, including the cultivation of crops under careful observation by practical men, have resulted in general belief and acceptance of the following facts which may be turned to practical account: (1) that leguminous plants well furnished with root nodules will collect and store per acre the nitrogen supplied by several hundred pounds of guano, nitrate of soda or sulphate ammonia; (2) that when the spores of the bacteria are distributed in the soil and taken up by the root hairs of the plants, these spores induce abnormal growth in the tissues of the roots and increase to many millions of organisms in a short while; (3) a soil may contain some of the bacterial spores and therefore there may be no nodules formed. And as each variety of leguminous plant appears to be the host of a special bacterium, it is quite possible that the one required may not be present to invest and form nodules on the crop; so that in both cases there would be no nodules or collection of nitrogen. To provide the proper bacteria in the soil, a mode of soil inoculation has been adopted. A small quantity of soil from a field in which a good crop of the special legume to be cultivated has been grown is spread over the new land."

Nitragin experiments.

In detailing the results of the experimental work at the Woburn Experimental Farm, Dr. Voelcker writes as follows:—"The new inoculating material, 'Nitragin,' as is now known, was intented to promote the growth of leguminous crops by enabling them to form the nodules on their rootlets which are so closely associated with the assimilation of nitrogen from atmospheric sources. It was, therefore, only natural that an extended series of experiments should be carried out with it at Woburn, and chiefly in the hope that it might prove a solution of the 'clover-sickness' difficulty. The experiments must, however, be for the present dismissed with the remark that though here and there there have seemed to be some indications of success attending the employment of 'Nitragin,' nothing of a definite nature has been ascertained, and one is rather driven to the conclusion that our ordinary agricultural leguminous crops do not find lacking in the soils of this country the organisms which they require for nodule development and nitrogen assimilation. In experiments carried out with beans, it was noticed that, when the *seed* had been inoculated with the 'Nitragin' proper to it, the crop came into flower at least eight days before there was a sign of flowering in the other plots; that the next plot to come into flower was that the *soil* of which had been inoculated with the 'Nitragin,' and the latest of all was the untreated plot. The early flowering, however, seemed to result in a stunted growth later on."

Large coffee-beans.

With the present trend of the market, it becomes far more important than ever it was before to make the proportion of A or No. 1 grade as large as possible. The prices of the first sizes of plantation coffee are now almost double those of the lowest grades, showing a range of prices indeed that is quite novel to East Indian coffee. Means in plenty to effect the desired end, *i.e.*, to obtain the major portion of

the crop in the higher grades. Some are foolish, others impracticable. Others again are worthy of close attention. Heavy pruning and liberal manuring—the first of which is in striking disfavour compared to the esteem the latter is held in—are recommended with obvious force. To take an extreme case, it pays better to get 10 cwt. of 90*s*. coffee than 15 cwt. of 50*s*. grades. Less again is taken out of the tree by the smaller crop. Heavy pruning doubtless reduces the crop, but each berry on the tree, backed up by liberal manuring, has a far better chance of attaining its fullest development. But, as a correspondent points out, there is something yet more necessary, and that is, the importation of new and better varieties than we possess at present. Were cross-fertilization with Liberian systematically followed according to the lucid directions by the well-known expert "J. C.", the result would speedily show itself in the shape of a large and better bean. A simpler way would be the larger planting up of maragogipe, which bears an extremely larger and handsome bean, delicate though the tree is and much subject to leaf disease. Some few bags of maragogipe were sold on behalf of a Nilgiri planter and realised extreme prices.

Rubber in Ceylon. The fourth circular issued by Mr. Willis, Director of the Ceylon Botanic Gardens, affords a very good and useful summary of information on the subject of "Rubber," although, so far as we, states the *Ceylon Observer*, can see, there is nothing specially new, and a good deal of the practical information is taken from the reports of the Forest Department. Mr. Willis tells us that the world's consumption of rubber is now over 100 million lb. per annum, worth more than 10 million sterling, and nearly half of this comes from Para. We shall be compiling full statistics shortly for our Handbook, and will be able to verify these estimates. The discovery of the new rubber-yielding tree, *Kickxia africana*, has met the increasing demand and kept prices down; but the reckless destruction of trees in collecting must erelong tell. Mr. Willis proceeds to give an account of the Para district, the estimate and soil suited for *Hevea* (the Brazil rubber), the mode of planting, rate of growth, the mode and yield in tapping. He shows that tappings at weekly intervals of trees about 2 ft. mean girth in 1897 gave a return of 5·17 oz. per tree. Heneratgoda experiments point to 90 lb. rubber per acre after 20 years—not very encouraging; but Mr. Willis thinks better results can be got by planting closer and tapping earlier. As to cost of opening plantations, he takes R75 per acre for cost of 300 acres of land and shows a total outlay of R75,777 up to the 10th year, or with interest at 7 per cent. R110,000 equal to R366·66 per acre. Taking the yield in the 10th year of this properly planted plantation at 100 lb. per acre, we get a gross return of £10 or R150 per acre, and taking R50 for cost of harvesting, carriage to London, &c., we get R100 an acre, or 27 per cent. on outlay, leaving an ample margin for contingencies and satisfactory profit.

Coffee market. At the Dutch sale on Tuesday, with the exception of the finer grades, writes the *P. M. Review* of 29th ult., there was a slow demand, and prices for the commoner sorts receded from 3 to 4 cents below the previous sale. Here there has been much the same kind of market, for little business can be done in the lower qualities, and to effect sales a reduct has generally to be accepted, but the finer sorts are scarce that higher prices have again been paid. New c Costa Rica continues to arrive in such small quantities t there has been no chance to fairly test the market, and few lots of moderately fine have fetched rates even hig than those that were ruling last year. Of the new c East India there has again been a decided advance in bold, and though the next size has sold rather dearer, th is still an extraordinary difference between the prices p for the two sizes, in some instances as much as 25*s*. per c a larger variation than was ever before known, and which must lead to more attention being paid to the B than to the bolder. In the terminal market heavy rece and large estimates of the coming crop have caused a of about 6*d*. per cwt., but there is a firmer tone noticea at the close.

LONDON COFFEE RETURNS.

—	HOME CONSUMPTION.		EXPORT.		STOCK.	
	1898	1897	1898	1897	1898	189
For the week ended Jan. 22, 1898.	Tons. 268	Tons. 259	Tons. 325	Tons. 224	Tons. 10,104	To 8,2
For the 3 weeks ended Jan. 22, 1898.	862	849	927	691	—	—

Citronella Oil. Citronella oil, about which a co spondent was enquiring lately, extensively used in perfumery and for other purposes chiefly obtained from Ceylon and Singapore. It has b noticed for some time, says an exchange, that the nati distilled oils have an aroma much inferior to those disti by Messrs. Fisher of Singapore and Messrs. Winter Son of Galle, and that these two classes of oils also sh marked differences in physical characters. Messrs. Um and Swinton have lately examined a number of commer samples of both classes, and their results were commu cated to the recent British Pharmaceutical Conference. the case of the native oils, submitted to distillation residue amounting to 37 per cent. of the total was behind, while the whole of the oil from English fo distilled over. This difference was thought to be due the fact that the latter were steam distilled and the la obtained by fire heat. The residue referred to was distil after purification, between 245 and 280c., and had a h specific gravity, possessing all the properties of a sesqui pene, but differing in physical properties for any previou described bodies of that class. Being odourless it is c sidered a valueless constituent, while being fairly solubl affects the solubility of the oil. Again, it was found t while camphene was almost entirely absent from the na oils, the oils of the English firms consisted chiefly camphene, the active terpene of the native oils being abs owing probably to its having been removed. The chemi therefore, conclude that the native-distilled oil is in no sophisticated, but is a genuine natural oil. [It would interesting to know (1) whether the natives use any ot grass other than, or in addition to, the true citronella gr

he cultivated form of *Andropogen nardus*), and (2) whether ny difference as suggested in the above report is the nethods of distillation by natives and Europeans. Some ears ago it was pretty well known that a good deal of dulteration with kerosene oil was practised by the natives. Has this practice been given up now, or have the manufacurers found another adulterant which chemists are unable o identify ?]

The Anaimalais. The Madras Government, says the *Pioneer*, it will be recollected, nade an effort last year to open up the reserve forest land on the Anaimalai Hills on the Travancore frontier; and in April last some 15,000 acres of forest land were put up for auction at an initial bid of Rs. 5 per acre. The land was disposed in blocks, each comprising 1,000 acres as a maximum; and no single purchaser was allowed to acquire more than one block. The reason for imposing this restriction was to prevent the land at the very outset from falling into the hands of a few parties, or perhaps of a single individual; for the object the Madras Government had in view was to try to establish a colony in this region, the members of which would be directly interested in the land. If a number of purchasers could be procured, great progress would be made in the realisation of this plan. Moreover, 350 acres were specially reserved, so as to serve for the locality of a town which would probably spring up in the centre of the projected colony. In addition a road some 25 miles in length is now in course of construction, and extends from the base of the hills up to the estates, which are situated at heights ranging from 3,000 to 4,500 feet above sea level. The land was given up by Government on very easy assessment, which was settled for a period of forty years; but every purchaser had to undertake that he would cultivate his land within six years. The soil is excellent, and it is stated that no manure will be required for ten years, as forest drippings have abundantly covered the soil. When the auction of land took place last April, the advantages of taking up land on the Anaimalais were evidently not realised by the public, for few purchasers came forward and there was practically no competition at the auction. Some well-known firms, among whom were Messrs. Finlay Muir & Co., entered the field, but they, like private purchasers, were limited to the acquisition of a single block. The Madras Government, however, did not provide against the subsequent sale of blocks by purchasers, and it is difficult to see how they could have imposed any prohibitory conditions with regard to such transactions. The consequence has been that wealthy purchasers have bought several blocks from their original buyers, and the latter have made enormous profits over the sales: having disposed of the land at three or four times the price which they paid to Government. In May next it is understood that the Madras Government intend putting up for auction some 80 square miles of forest land: but this time it is expected that the competition will be severer than last year; for speculators are just beginning to get wind of the extremely profitable transactions of some of the purchasers of last year. The region which is being opened up seems to be full of promise; and hopes are entertained that a fairly prosperous settlement will soon spring up here; but doubts are felt as to whether the original intentions of the Madras Government will be carried out. As matters stand at present, it looks as if the capitalist and speculator would exploit the situation between them.

Exchange and planting in Assam. A Calcutta correspondent reports the present stagnation in the late vigorous extensions of tea, owing to the severe and continued rise in exchange. Half a loaf, he urges, is better than no bread, and if exchange is to be high, why, let us hope it will be fixed permanently at one level. This is plausible enough, but we say, if exchange is to be fixed at all, let it be on a low level. The influx of cheap capital induced by a *fixed* exchange, not because it is high, mind, will be doubtless of great benefit to the whole country, planters included. But there is not the least necessity, with the exception of importing traders and Government, of the exchange being fixed at a high standard at all. Our correspondent admits the evil effects of a high exchange on agriculture by referring to the imminent abandonment of many large areas of poorly-planted tea. Cheap capital is good and very welcome, but the profits from a low exchange are a great deal higher than the margin of difference between high and low interest on capital. For as sterling capital used in India means practically rupee capital, a high exchange, joined with cheap sterling capital, simply means that, as the rupee capital is the same, a larger equivalent in sterling will be needed. In tea, a certain saving is made by cheaper machinery, but expenditure on machinery forms by no means a large proportion of the total outlay per acre. In coffee, even this saving is lost. To put it into figures. Suppose that exchange is fixed at par, *i.e.*, Rs.10 to the £1, and that the rate of interest is only 5 per cent. For every thousand rupees borrowed interest must be paid on £100, which at 5 per cent. is £5 or Rs.50. Supposing exchange, however, was as low as Rs.20 to the £1—as it would be now, were the honest rupee still in force—, and interest was as high as 10 per cent. We should still require to borrow only a thousand rupees, *i.e.*, £50, on which the interest at 10% would be £5 or Rs.100. It is clear, therefore, that we are paying double interest on our capital. But let us now take the profit side of the question. We will assume that the net sterling proceeds of our crop are £100, out of which we have to pay Indian charges only. At par, this would realise only one thousand rupees, but at Rs.20 to the sovereign, we should net just double. Assuming, for the sake of argument, that Indian working expenses are Rs.500, the profit at par would be Rs.500, while at the lower rate the profits would be Rs.1,500. The capital required to produce these results

COFFEE SHADE TREE.

Sun-dried Erythrina Lithosperma loppings, &c., contain per ton:—

61·50	lbs.	Nitrogen.
57·38	„	Potash.
14·92	„	Lime.
13·68	„	Phosphoric Acid.

Seed cured under Messrs. Sutton and Sons' advice.

Orders should be booked early for the coming crop of seed from the parent trees of above analysis at Rs.6 per pound containing about 2,000 seeds. *Germination guaranteed.*

Only thornless variety extant, and is not procurable anywhere save from the

MANAGER, ARIENKOW ESTATE,
Shencottah.

may be put at Rs.7,500, in sterling £750 at par and £375 at 20*s.* per £1. The interest on the former amount at 5% would be £37-10 or Rs. 375; the interest on the latter at 10% would be £37-10 or Rs.750. The interest at par would only leave Rs.125 profit, while at 20*s.* per £1 there would still be the margin of Rs.750.

To conclude our dissertation, the relative profit in rupees at par and at 20*s.* per £1 are as 6½% to 25%.

And to think, if there were any sense in high places, that we could get both low exchange and cheap capital by the simple expedient of fixing the exchange, if fixed it is to be, at a low rate. Of course, the rupee will not be made exchangeable at par, so that in effect the contrasting ratio of interest would be as 10% is to 25%.

LETTERS TO THE EDITOR.

ANSWERS TO CORRESPONDENTS.

["Vale."—You have mixed up "high" and "low" exchange in such a manner that your argument is unintelligible. Try and put your ideas ship-shape and write us again.—ED.]

TO KEEP PASTE SWEET.

SIR,—It may interest some of your readers to know that, by the addition of a few drops of such preservatives as blue-gum oil, oil of cloves, &c., it is perfectly easy to keep home-made paste sweet for any length of time.

PASTE.

HOW E. LITHOSPERMAS GROW.

SIR,—For the last few years we have read a great deal of the wonderful *Erythrina lithosperma*, and there are, I fancy, few planters who cannot show some thousands of this tree on their estates. It would be interesting to know more of the growth of this tree, and at what elevation it thrives best. Last monsoon (July) I put out a few thousand plants *in baskets* which were 1 ft. high; some now are over 8 *feet*, while a good many after eight months' growth are only 2 feet high! Many are full of leaf, but most of my plants are leafless. Is this the same in all districts?

The dry weather is the time when all shade plants, to be of any use, ought to have their leaves on, so where is the advantage if the E. L. drops its leaves in the hot weather?

Some of my plants have thorns on and exactly like plants of *E. indica* (Can. Halwan), which in my humble opinion is just a variety of E. L.

"D."

PRICES OF PARCHMENT COFFEE.

SIR,—It would be interesting to note the prices of parchment coffee in different districts. A leading firm in Calicut offers Rs.11—14 per bushel of parchment delivered at the store on the Shevaroys, with a guarantee of 85 bushels to the ton, while here in Mysore the ruling price is between Rs.9 and 10, and yet Mysore coffee is supposed to be far *superior* than any other.

The outturn in this district this year is considerably over 90 bushels per ton, and yet firms demand a guarantee of 85 bus.

"FOXY COFFEE."

GENERAL ARTICLES.

U. P. A. S. I. SECTION.

RE-OPENING OF THE MINTS.

THE following is a copy of a Circular that has been issued to all Members of the Committee, together with a copy of the Chairman's letter to the Government of I expressing our views on this most important question:

MADRAS, 22*nd February*, 189

CIRCULAR.

TO ALL MEMBERS OF THE COMMITTEE.

DEAR SIR,

I beg to hand you, herewith, a copy of a letter on the cur question addressed by the Chairman to the Government of Ind

You will remember that only a very short time ago the M Chamber of Commerce addressed the same Government on subject, giving its views in favour of the adoption of the Lin Scheme or of some modification of it by which the exchange of the Rupee would be kept fairly stable at 1*s.* 4*d.* The ge trend of opinion would appear to be in this direction, and it necessary, if we were not prepared to have the exchange que settled in a manner antagonistic to our interests as exporters, we should take immediate steps to place our views before Government of India.

The matter having, therefore, become urgent, there was no to be lost, in the Chairman's opinion, in making the autho acquainted with the views of this Association as expressed in Circular letter issued to all Chambers of Commerce, etc., and he has accordingly done in the letter herewith circulated.

A copy of the Chairman's letter was supplied to the Press so full publicity might be given to our views.

I am, dear Sir,
Yours faithfully,
(Signed) ALLAN RONALDSON
Ag. Secy., U. P. A.

FROM

GEORGE ROMILLY,
Chairman, U. P. A. S. I.,

To

THE SECRETARY TO GOVERNMENT OF INDIA,
Financial Department, Calc

SIR,

As we observe that the Madras Chamber of Commerce has rece laid its views on the currency problem before the Governmen India, and as we note with alarm that it advocates the adoptio what is known as the Lindsay Scheme for establishing a standard, and thereby fixing the rupee at about 1*s.* 4*d.*, I now the honour to submit for the consideration of Government the v of this Association on the subject representing, as I believe they not only the interests of the educated Native and European plan whom I have the honour to represent, but also the interests of voiceless millions of native cultivators who are as yet unawar the heavy burden under which they are laid. We agree with Chamber of Commerce "that if India is to be saved from ruin she is to prosper, cheap capital is absolutely necessary to dev her great resources"; but we go further than this, and main that not only cheap capital is necessary, but also a rupee at its nat value in order that the export trade, which is the backbone of prosperity of India, may not be handicapped.

Our two chief industries are the growing of tea and coffee. teas have to compete with Japan and China. Japan has rece adopted a gold currency, but has fixed her exchange (doubt having this and other competition in view) at the present low ruling in silver standard countries, and is for all practical purp one of them. China has a silver standard, and a practical illustra of her favoured competition with India was recently afforded by starting of the Foochoo Tea Improvement Company, which in prospectus lay stress on "the advantage China now has over I and Ceylon in cheap silver, the exchange value of the rupee exc ing that of silver by fully 25 per cent." But taking the pre intrinsic value of the rupee at between 9*d.* and 10*d.*, and exchange value at 1*s.* 4*d.*, the actual advantage in favour of C amounts to 60 per cent.

In like manner our coffees have to compete with those of Br

d Central American States. Brazil has nominally a gold stand-
d, but owing to bad financing, the milreis (its standard coin) has
llen in value during the past ten years from 27*d.* to between 8*d.*
d 9*d.*, so that for all practical purposes Brazil is a country with a
rrency on a level with that of all silver standard countries. Costa
ica and the other coffee-exporting countries of Central America
ave a silver standard, and consequently with Brazil enjoy the same
lvantages in their competition with Indian coffee as China and
apan have in the tea trade.

The Madras Chamber of Commerce admits "that Indian producers
ill be heavily handicapped in competing with silver-using
ountries by a fixed 1*s.* 4*d.* rupee; but to attempt to fix a lower
andard does not seem to be within the limits of practical politics."
is is this prejudication which we would oppose. In our opinion the
ue solution of the present difficulty lies in the re-opening of the
ints. We believe that if this were done a great stimulus would be
iven to the export trade of the country, and capital would be again
tracted. The only obstacle, which unfortunately has been allowed
overshadow the whole question, is the loss that would be entailed
the Government of India by its home charges. This, we believe,
ould be largely compensated by the increased trade and prosperity
f the country, but if fresh taxation became necessary to meet the
equirements of Government, we as producers would prefer to submit
o a small direct export tax on our produce than to have to struggle
gainst the present crushing handicap in favour of produce from
ilver-using countries.

I have the honour to be,

Sir,

Your obedient servant,

(Signed) GEORGE ROMILLY,

Chairman, U. P. A. S. I.

THEORIES BY A NEW HAND.

Planting Extraordinary.

This time I am breaking out in entirely a new place, but
ave borrowed theory from practice, instead of my usual
ice versâ process. The idea is not originally wholly mine.
have chosen my own title, for it *is* planting extraordinary
nd no mistake. It has practically nothing to do with old
nd established estates. I refer wholly to young clearings,
nd how to get the largest possible crops in the quickest
ossible time without forcing or otherwise hurting the
lants in the least.

It seems a puzzle, but I am in earnest, in dead theoretic
nd semi-practical earnest. It can be applied just as well
o coffee as to tea, though I by no means claim perfection
or the system. It has certain obvious faults; whether
hese are counterbalanced or not by its advantages is for
ny readers to judge.

In planting up new estates, whether of coffee or tea, the
tmost efforts are made to get the whole into bearing as
uickly as possible. It generally takes, however, some three
ears or so before the whole estate is planted, usually for
vant of ready money.

I suggest the simple plan, which is originally that of a
vell-known planter, of planting just double the usual num-
er of plants, and letting them bear till they get too
rowded. Then, after cutting them down to the collar, dig
hem up and transplant to the cleared but unplanted por-
ion of the estate.

Before I go any further, and attempt to meet the chorus
f derision, let me touch on the first objection, *i.e.*, the expense of having to pit double the number of holes. As a matter of fact, pits are, to the best of my theoretic belief, not absolutely necessary.

Pits are used to enable the young plant-roots to roam about freely and pick up all the food they can at the start. The larger these pits, *i.e.*, the greater the area of loose soil round the roots, the better the young plants are supposed to come on. Why not have the whole estate one large pit? In other words double dig the whole clearing, as is the practice in isolated cases in Mysore and elsewhere. The cost is not excessive by any means, and in two years the saving in weeding over pitted land will recoup the small excess of outlay. With the closer planting of tea, it is a trifle cheaper than pitting.

Having settled the question of the extra expense of pitting, I shall proceed. In advocating the planting up of double the usual number of plants, it must be remembered that the result will not be that the plants will be twice as close in feet. If the usual distance for coffee be 6×6, double the number of plants per acre will result in the trees being 3×6. With a view to transplanting in a few years' time, the 3×3 plants should be in rows running at right angles to the slope of the ground. This will render digging out the trees a great deal easier.

I have taken it for granted that stumped coffee or tea *can* be transplanted successfully almost at any age, as this is in accordance with facts, I believe.

The advantages of close planting are several. First, that your maiden crop will be about double the usual one; secondly, that for the next two to three years—according to elevation—the same proportionate increase in crop will be obtained; thirdly, you can transplant the now crowded plants straight into your new clearings, stocking them with three or four year old plants instead of the usual nine sets twelve months' seedlings. The first year after transplanting will of course bring in no crop to speak of, as the stumps will be fully occupied with getting a strong foothold in their new home. The year following should, on the contrary, see your now two-year cleared land bringing in full crops.

The only point to consider now is whether the after career of these stumps will be as good as their younger rivals. Here a deal of practical experience records, with regard to coffee, a decided "No." My reply is, I admit, a weak-sounding one, but I believe the method of transplanting adopted in such cases was utterly wrong. A disquisition on this point would run this paper to inordinate length, so I must merely beg the question. With tea, I doubt if it has even been tried largely. A concluding objection lies in the ill-effects induced by over-close planting in the original cleaning. Though both the objections above are weighty ones, without doubt, yet the only manner in which to arrive at a true conclusion is to carefully sum the respective advantages and disadvantages, and strike a balance.

Advertisers are notified to send all advertisement matter and answers to advertisements direct to Manager, this paper, 3, Esplanade Row, Madras.

Correspondence and matter for publication to be sent to Editor, this paper, Coonoor.

FERTILIZATION OF THE COFFEE FLOWER.

III.

CROSSING operations being completed, the next step would be to select a suitable piece of land for the cultivation and trial of seedlings raised from the crossing plot. It is in this final stage of the experiment that the exact result of cross-fertilization would become apparent, and not before. But the operator needs to possess patience, for among 10,000 seedlings cultivated there may not be *one* showing real improvement in every respect. With our limited experience in crossing, it is uncertain what would happen, although there is reason to believe that cross-fertilization would induce beneficial variation in the growth and production of coffee.

The land required for testing seedlings of mixed parentage should be of the best quality, and the cultivation should be on a liberal scale also. Area is a matter for the planter himself to decide, as it depends wholly on the extent of his operations. I do not, however, advocate large areas for mere experimental work. When the seedlings give their maiden crop, it will be seen approximately what merits they possess from a productive point of view. But other merits, which may be roughly termed constitutional, will only become apparent after a lapse of time and under different modes of treatment. I can readily imagine that a judicious selection of the fittest would prove a most difficult task, even to an expert. The operations discussed from the beginning until now, when the second generation has borne its first crop of fruit, covers a period of about six years. This is a long time, and some men would doubtless say "is the trouble worth the candle? Especially as there is nothing to prove that much good would come out of it." In answer to such a remark, I am pretty firmly convinced that good would come out of it and have already planted up a small crossing-plot with the view of raising hybrids. The plot consists of 130 bushes, and includes *C. arabica, C. liberica* and the "variety maragogipe." A few of the bushes are already well advanced in growth, so that the first batch of crossed seedlings may fruit within five years from date. But when matured bushes can be cross-fertilized this season, the results might be known within four years, which is not very long for a young planter to wait.

My object, so far, has been to explain the *modus operandi* of fertilization rather than to discuss side-issues bearing on its application to the genus *Coffeæ*. But now, I may refer briefly to argumentative views on the latter question. As the coffee bush possesses a hermaphrodite flower, it may be held by some that crossing is neither possible nor desirable. But it does not follow that a flower is self-pollinated because it contains both sexes. In numerous hermaphrodite flowers the sexes attain maturity at different periods, and in all such cases self-pollination is effectually prevented. That dichogamy prevails to some extent in the coffee-flower is certain, as I have often observed stigmas in the receptive stage when the anthers had not dehisced. I am unable to say, however, if this is a general condition, or if it only happens in occasional flowers. A flower may thus be structurally hermaphrodite and functionally unise Then, the sweet-scented coffee flower offers great attra to insects, which is a pretty sure sign that the dispers pollen is favoured by Nature. Indeed, the condition pollen is such as would adhere readily to the hairy lin insects. It is not of the fine powdery kind (so-called of flowers) that would be suspended in the air or li carried by the wind.

Considered, therefore, from a morphological standp there is little doubt but the genus *Coffeæ* is subject to fertilization, and that its flowers are entomophilous.

Lastly, I wish to dispel the idea that established can be influenced one way or the other by operatio crossing, the results of which are only discovered in a sequent generation.

But it is highly necessary that the planter should st conserve his testing-ground, and not allow any unk seed to be utilised for estate purposes. The golden r the testing or experimental ground is to destroy all inf forms as quickly as possible.

New strains of seeds reserved for trial could be tr separately until such time as their merits are fully estab ed. This is all I have to say on the fertilization of the flower at present.

J.

LIBERIAN COFFEE IN THE STRAITS.

II.

PLANTING AND SHADING.

THE holes having all been filled with rich top soil are ready for planting and have only to await the next shower of rain. Great difference of opinion exists amo planters whether it is better to plant young plant stumps. Some say that nothing can beat stumps, have the advantage of seeing and examining the root stumps, and they contend that a stump requires less and if once planted out develops much quicker stronger than a young plant. "Stumps" are young c trees about one to two years' old which are taken out o nursery and cut off about four inches above the roots; tap root and other roots are carefully trimmed and the stumps are ready to be planted out.

Another way is to plant young trees. Your seedli about six months' old, are taken, with the surroun earth, out of the nursery and transplanted in the fi There are many ways of doing this, but the best way t it is with a transplanter. The best transplanter so fa vented, and mostly in use, consists of a thin coppe zinc cylinder about 4 in. wide and about 6 in. deep faste to a strong iron frame with wooden handles.

This is pushed into the ground and then twisted lifted with the plant and surrounding earth. To get plant and earth out of the transplanter, you push the la down over a piece of wood that fits into the copper sh and the young plant and earth are thus forced out of transplanter. It is then wrapped up in green leaves tied round with lalang and planted out in this state. lalang string and green leaves will soon rot away in

MILLIE & REDMOND, late P. THOMPSON & CO., *Ootacamund, Engineers and Contractors.*

round, and the young plant can develop without its growth aving been interfered with, without any tampering with s roots or removal of its original soil, out of which it has een accustomed to draw its nourishment.

You can practise and experiment yourself which is the ost advantageous method. My experience, after having iven many a most conscientious trial to young trees as ell as to stumps, is to put in nothing but young plants, nd *not stumps*. Of course there may be cases where you ave nothing else but stumps, and may be obliged to plant iem; but in that case you should stump your plants in the ursery about two months before you intend planting them ut and then plant them in the same way as young plants ith the transplanter.

The manner of planting I advocate requires a good deal ore time, attention and care than that of pulling the oung trees out of the nursery, stumping them, trimming ie roots and planting them into the ground, but it will epay you a hundredfold. Never hurry the planting, take our time over it and do it with the utmost care and atten-ion. Some people only plant in the early morning, others gain only in the afternoon, then the young trees get at nce the benefit of the cool night, and before the heat of he sun can do them any harm next day they are already overed and shaded. I plant right through the whole day nd shade the plants early next morning. Once a visitor sked me why I did not plant the trees about two ft. below he surface of the soil? Your branches, he argued, would hen all be just above the ground and not, as now, about wo ft. above. Every planter, of course, will be greatly musedat this; but yet I have seen young planters do it, nd it might therefore be just as well to mention here the easons why they should not do this:—

1. The branches would in that case be just as far from he roots as in the other case, and draw their nourishment rom the roots just the same; the roots, however, which in ie usual way draw their nourishment from the rich top soil, ould in the other case have to feed on the poor soil, hich they find two ft. below—in most cases such poor soil iat it would not grow coffee or anything else.

2. The young tree, being planted in a hole, would be rowned after the first heavy shower of rain.

3. A tobacco plant, if you cover it up, will shoot new ots as far as it is covered up, but a coffee tree consists of em and roots; if you expose the roots the tree will suffer, nd if you cover the stem it will rot and cause the tree to die.

Be careful to remember this, for I have seen many young lanters, to protect the roots and to give strength to the oung tree, as they thought, heap up rubbish and earth nnd the stem of the tree, which is almost as dangerous as lanting below the surface of the soil. Be particulary care-il, therefore, to leave the stem above the ground.

The sticks used for lining are still in the ground, and ery cooly can see that each plant is exactly in line and in s proper place.

Many planters say that stumps can stand the sun much tter than young plants and will live over a long drought here young plants would die; but this is quite wrong; thing will stand exposure to sun, wind and weather better an a young plant, carefully planted out and left as it is in idisturbed enjoyment of its original soil.

But whether stumps or plants, they both equally require shade. You can try it, of course, without shade and some of your plants may live over it; but it is quite certain, beyond any doubt, that shading can never do any harm.

The shading is done in many different ways. One is to plant shade trees and to place the young coffee under the protection of their branches. This enables your coffee to always have the advantage of shade and at the same time to get the benefit of fresh air and be open to your inspection; but it has the drawback that you have to plant the shade trees at least a year before your coffee, and that they may take a lot of nourishment out of the ground, which would otherwise go to the coffee. Others say that Liberian coffee will not bear so well under shade and that much damage is done by branches falling off the shade trees, but this is a matter in which everyone must judge for himself.* The system, so far, adopted in Selangor is to shade the young trees or stumps with branches of bertam palms; three or four of them, each about two ft. long, are put in the ground around and over the young plant, which is thus sufficiently protected against wind and sun, until it has taken root in the ground and is strong enough to support itself.

In planting, like everything else, organise your labour. No. 1 cooly will take the plants out of the nursery; No. 2 will take the plants out of the transplanter and put them on the leaves which are intended for wrapping the plant in; No. 3 will wrap the plants in the leaves and tie them together with a bit of lalang; No. 4 will lift the plants and put them in baskets; No. 5 will carry the baskets to the fields; No. 6 will take the plants out of the baskets and put one near each peg.

You will notice that I have not explained the way how to plant stumps except just to mention them shortly; the reason is that I am strongly against stumps and would consider myself guilty of gross injustice were I to say any more about them than to warn young planters against them. Stumps, if they do come up at all, may ultimately, in the most favourable circumstances perhaps, become equally good trees as young plants, but they will never become better, healthier or stronger trees. Given equal chances, the plant will always beat the stump.

One last word of warning in planting: pay particular care to the tap roots. Should the tap root stick out of the soil of the transplanter, when lifted out of the nursery, cut it off; if you don't, the root will get crooked and twisted and your young plant will never become a strong and healthy tree. Years afterwards, when you have spent time and money on your plantation and paid a lot of care and attention to a sickly-looking tree, you will discover, when you at last pull it out of the ground, that the tap root had got twisted in planting, and all the care and attention paid to this tree, all the energy and money spent on it, to say nothing of your valuable time, have been wasted and thrown away. Therefore be careful in planting; a mistake or carelessness committed in planting will perhaps only show itself two or three years afterwards, when it will be too late for remedy.

(To be continued.)

* I am of opinion that we require shade trees for our coffee in Selangor. It will, no doubt, bear less crop under shade, but the trees will bear a more regular crop and will last much longer. Without shade trees, especially on hilly ground, I am of opinion that coffee planting will in the long run not prove a success in the Malay Peninsula.

DISTRICT ASSOCIATIONS.

WYNAAD.

PROCEEDINGS of a General Meeting held at Meppadi on 2nd February 1898. *Present*:—Messrs. R. K. Walker (*Chairman*), C. E. Abbot, H. Atzenwiler, B. Behr, E. H. F. Day, J. W. Hockin, D. Mackenzie, W. R. M. Mackenzie, B. Malcolm, E. H. Powell, G. Romilly, S. Robinson, M. D. Taylor, H. Waddington, A. West, and E. DeFonblanque (*Honorary Secretary*).

Proceedings of last meeting were taken as read. *Revised Rules.*—The revised rules were laid before the meeting and discussed. Proposed by Mr. W. R. M. Mackenzie, seconded by Mr. H. Atzenwiler, that the revised rules be adopted and printed for circulation among the members of the Association. Carried. *Roads.*—Resolved that the Hon. Secretary be requested to address the President, District Board, Calicut, to point out to him that the Wynaad Planters' Association has, through the United Planters' Association of Southern India, already addressed the Chief Secretary to Government requesting that the Department of Public Works should resume the upkeep of the Calicut-Choladi road; and to request him to assist them in their endeavours. Read letter from the President, District Board, Calicut, stating that the grant towards the upkeep of the Chundale Sultan's Battery road will be reduced. Proposed by Mr. J. W. Hockin, seconded by Mr. H. Atzenwiler, that the Hon. Secretary, in acknowledging the President's letter, be requested to point out that the Sultan's Battery road is already in a very bad condition, that the main traffic of grain for the district is along this road, and that it will become impassable for such traffic during the next monsoon unless extensive repairs are taken in hand at once. Carried.

Pudupadi Hotel.—Read letters from Mr. T. J. Ferguson and C. Shangran. Proposed by Mr. J. W. Hockin, seconded by Mr. W. Mackinlay, that if C. Shangran builds a new stable south of the Government road and re-thatches and repairs the bungalow, all at his own expense and within the space of three months, the Association will pay him a salary of Rs.15 per mensem, after completion of the above work, as long as he conducts his business to the satisfaction of the Committee of the Association. Amendment by Mr. H. Waddington, seconded by Mr. E. H. F. Day, that the matter be left in the hands of the Committee. For Amendment 6. For Resolution 9.

New Members.—The following new members were elected: Dr. Barboza, Mr. D. J. Duncan, Mr. Douglas Jackson, Mr. J. C. MacDonald.

Sultan's Battery Post Office.—Resolved that the Association petition the Postmaster-General to make the Sultan's Battery Post Office a sub—instead of a branch—office.

Money Order.—Mr. Romilly called attention to the fact that the Post Office did not fulfil its obligations in paying Money Orders promptly, and cited as an instance that money sent from Calicut on 25th January was only paid by the Meppadi Post Office on 31st January. Members are therefore requested to give notice in writing of all similar cases to the Hon. Secretary, so that the Association can approach Government on the subject, as the Planting Member of Council refuses to interpolate Government on one isolated case. A vote of thanks to the Chair closed the proceedings.

MARKET REPORT.

COFFEE.

Messrs. R. J. Rouse & Co.'s Weekly Coffee Report (February 4, 1898) says:—The supplies brought forward in Auction this week have been on a moderate scale and valves in most cases ruled unchanged to rather easier.

No East India was offered.

Central American kinds consisting chiefly of Columbian met a fair demand at barely previous rates, but five colory Costa Rica attracted keen competition and realised extreme prices.

The Terme market has continued quiet during the week, and quotations at the close show little change since our last, an estimate of 4¼ Millions for the new Santos crop having very little effect, as it was considered far too small to be at all probable.

Messrs. Wm. Jas and Hy. Thompson's Report of the Colonial Marke
the Week ending February 2nd, 1898, says:—Bank rate 3°/₀. Bo
Exchange closes at 1s. 3 1/16d. Brazil Exchange 6 7/32d. Rupee
3½ °/₀ 63⅜. Silver 26 1/16d. per oz.

Very full prices continued to be paid for fine colory kinds whic
again dearer; other qualities, however, are slow of sale and some
lower at the close. Fine new crop Costa Rica met with keen compet
Brazil markets are steady at the decline. Daily receipts averaged 1
bags in Rio, and 12,700 bags in Santos.

Futures have been dull throughout the week, but close firmer at a
advance, viz.:—Good average Santos in Havre, March delivery, fcs.
in Hamburg pf. 30¼, and No. 7 low ordinary Rio in New York $5.65.

To-day's London official quotations are:—

	Jan.	March	May	July	Sept.	Dec.,
SANTOS ...	30/-	30/3	30/9	31/-	31/3	31/6

We quote:—

Ceylon, mid. to good mid.	95/	@105/	
Do. small to low mid.	75/	„ 93/	
East India, mid. to good mid ..	78/	„ 93/	
Do. small to low mid.	65/	„ 76/	
Guatemala, mid. to fine...	75/	„ 100/	
Do. good ord. to low mid ..	55/	„ 73/	
Salvador, good ord. foxy greenish...	45/	„ 49/	
Costa Rica, mid. to fine...	77/	@	
Do. ord. to low middling.	53/		
Jamaica, good to fine ord.	47/		
Do. greenish to fine colory...	70/		
African ...	28/		
Columbian, ordinary ...	38/		
Do. good ord. to low mid...	45/		
Do. mid. to fine ..	71/		

Receipts in Brazil to 1st February compare as follows with pre
years:—

	1897-98. Bags.	1896-97. Bags.	1895-96. Bags.
RIO	3,014,000	2,467,000	1,801,000
SANTOS	4,850,000	3,922,000	2,578,000
	7,864,000	6,389,000	4,379,000

Auctions:—

8 casks & tierces 2 barrels Plantation Ceylon ...	@ 96/	@	
201 bags Coorg, new crop	„ 57/	„	
2,088 bags Costa Rica, part London cleaned, chiefly new crop, chiefly sold	„ 49/6	„	
1,324 bags Guatemala, part London cleaned, chiefly sold.	„ 31/6	„	
908 bags Salvador, new crop, part London cleaned ...	„ 33/6	„	
327 bags Nicaragua, chiefly new crop, part London cleaned	„ 37/6	„	
345 bags Mexican, part London cleaned, chiefly sold...	„ 53/6	„	
49 bags Vera Paz, part sold	„ 42/	„	
3,512 bags Columbian, part London cleaned, chiefly sold.	„ 34/	„	
89 bags Peruvian, part London cleaned, bought in.			
39 bags Liberian Johore	„ 25/6	„	
180 bags Ceara bought in.			
55 bags Guayaquil	„ 40/6	„	
466 barrels 43 bags Jamaica, part London cleaned, partly sold	„ 42/	„	
15 packages Mocha bought in.			

On Quay Terms:—

250 bags washed Santos bought in.
219 bags Santos bought in.

TEA.

Messrs. Gow, Wilson and Stanton's Indian, Ceylon, and Java Tea Re
dated February 4th, 1898, says:—

QUANTITY BROUGHT TO AUCTION IN LONDON
FROM 1ST JUNE TO DATE.

	Indian.	Ceylon.	Java.
1897-1898...	1,161,660 packages.	808,675 packages.	28,576 pack
1896-1897...	1,186,098 „	768,671 „	26,491 „

35,861 *pkgs.* INDIAN
33,095 „ CEYLON
875 „ JAVA
} Total 69,831 packages were offered in p
auction this week.

Indian. Only 35,861 packages were brought forward; this resu
in a steady market for all descriptions. A few closing invoices hav
ready been catalogued. The official telegram from the Indian Tea A
ciation, Calcutta, gives the total exports to U. K. for second ha
January as 5,130,000 lbs., against 4,890,000 lbs. last year, and f
1st April to end of January as 130,450,000 lbs., against 127,640,000
for the same period last season.

Week's av. of Tea sold on Garden Account, 1898, 29,547 pkgs., av. 7·98d. 1897, 35,010 pkgs., av. 9¾d.

	1898. Pkgs.	1898. Price.	1897. Pkgs.	1897. Price.	1st June to date 1897-8. Pkgs.	1st June to date 1897-8. Price.	1st June to date 1896-7. Pkgs.	1st June to date 1896-7. Price.
ssam ...	13,173	9 37	19,389	11	412,389	10·01	410,288	10·16
achar & Sylhet...	9,665	6·73	7,569	7	223,731	7·01	208,642	7·40
hittagong ...	—	—	92	6¾	4,834	7·19	2,856	7·54
hota Nagpore ...	—	—	191	5¼	1,306	5	1,466	4·95
arjeeling ...	1,284	9·62	2,638	1/1¼	58,674	11·11	53,665	1/·26
oars ...	4,080	7·04	3,877	7¼	102,458	7·57	106,491	7·50
angra, &c. ...	247	6·64	178	7½	7,130	7·21	50,90	7·18
eilgherry ...	32	7·50	—	—	5,210	7·05	3,163	6·84
erai ...	149	7·36	140	8	18,747	7·19	11,660	7·15
ravancore ...	917	6·62	936	6½	24,570	6·45	22,106	6·92

Total sold on Garden Account 1st June to date 1898, 858,557 pkgs., v. 8·86d. 1897, 825,427 pkgs., av. 9·05d.

Comparative prices of Indian Tea in London:—

		1898.	1897.	1896.	1895.
UST.	(Fair ordinary, dark liquor) ...	3¾d	4¼d	4¾d	5d
ANNINGS.	(Red to brown, strong rough liquor) ...	4¼d	4½d	4d	6d
ROKEN TEA.	(Brownish to blackish, strong liquor) ...	6¼d	6¼d	6¼d	7½d
EK. SOUG.	(Blackish greyish, useful liquor).	6½d	6½d	6¾d	8¾d
PEKOE.	(Greyish to blackish, some tip, useful liquor) ...	7½d	8d	7¾d	9d
PEK. SOUG.	(Blackish greyish, inferior liquor).	5d	5d	5¼d	7¼d
PEKOE.	(Blackish greyish, some tip, inferior liquor) ...	5½d	5¾d	5¾d	7¾d

Ceylon. The week's auction was heavy, comprising 33,095 packages, and although meeting with good attention from buyers, some slight reduction was noticeable in values, especially in medium Teas, which were distinctly weaker. The Official Wire from Ceylon gives exports to U. K. for January as 8,000,000 lbs., against 7,250,000 last year, and estimates the quantity for February as 6½ to 7 million lbs. Average for week 7·72d., against 8d. same period last year.

Ceylon Tea sold on Garden Account 1st January to date 1898, 1,417 14pkgs., av. 8·12d. 1897, 112,786 pkgs., av. 8d.

Comparative prices of Ceylon Tea in London:—

		1898.	1897.	1896.	1895.
PEKOE SOUG.	(Ordinary leaf; fair liquor) ...	6¼d	6d	6½d	8d
PEKOE	(Ordinary leaf, little twist; fair liquor) ...	7d	7¼d	7¾d	9d
PEKOE SOUG.	(Rather bold leaf; indifferent liquor) ...	4¾d	5d	5¼d	7¼d
PEKOE	(Somewhat bold leaf; indifferent liquor) ...	5¾d	5¾d	5¾d	7¾d

MOVEMENTS of TEA in LONDON (in lbs.) during JAN., from TEA BROKERS' ASSOCIATION FIGURES.

	Imports. 1898.	Imports. 1897.	Imports. 1896.	Deliveries. 1898.	Deliveries. 1897.	Deliveries. 1896.
NDIAN	15,390,635	14,095,048	12,414,491	11,592,565	12,136,271	12,141,602
EYLON	8,189,462	7,037,460	8,096,234	7,501,176	7,375,306	6,442,100
AVA	245,280	263,410	343,630	248,570	137,060	257,040
HINA, ETC.	3,634,549	1,251,543	3,924,583	3,079,820	3,625,756	3,266,431
TOTAL lbs. ...	27,459,926	22,647,461	24,778,938	22,422,131	23,274,393	22,107,173

FROM 1st JUNE TO 31st JANUARY.

	Imports. 1897-8.	Imports. 1896-7.	Imports. 1895-6.	Deliveries. 1897-8.	Deliveries. 1896-7.	Deliveries. 1895-6.	Stock. 1897.	Stock. 1896.	Stock. 1895.
NDIAN	117,028,270	112,497,020	103,336,442	83,792,120	83,144,250	79,240,430	65,471,362	56,103,380	53,657,163
EYLON	63,058,498	60,532,216	53,468,074	65,694,044	61,072,742	55,722,882	17,317,634	18,017,008	15,467,163
AVA	2,285,990	2,283,680	2,492,770	2,443,770	2,696,750	2,584,050	594,440	574,630	846,230
HINA, ETC.	29,119,782	30,975,910	37,882,120	22,372,216	27,442,103	28,491,492	19,750,905	23,173,602	29,101,516
TOTAL lbs. ...	211,492,540	206,288,826	197,179,406	174,302,150	174,355,845	166,038,854	103,134,341	97,868,620	99,071,953

Java. The Teas were mostly sold with fair competition at rates current last week.

PUBLIC SALE OF SOUTH INDIAN TEA.

(AVERAGE FOR ALL INDIA 7·98*d.*) *February 4th.*

GARDEN.	Total. Quantity	Average. Price.	Broken Org. Pek. or Flowery Pekoe. Quantity	Broken Org. Pek. or Flowery Pekoe. Price.	Pekoe and Unassorted. Quantity	Pekoe and Unassorted. Price.	Broken Pekoe. Quantity	Broken Pekoe. Price.	Pekoe Souchong. Quantity	Pekoe Souchong. Price.	Broken and Souchong. Quantity	Broken and Souchong. Price.	Fannings, Dust, and Various. Quantity	Fannings, Dust, and Various. Price.
eilgherry ...														
ykara Falls ...	32	7½	...	...	20	7	12	8½	...	...	...	...	...	...
ravancore ...	917 p	6·62												
arady Goody ...	149	6½	48	6	24	5½	54	7¾	9	5¼	...	...	14	5¼
heroot Mallay ...	64½c	5¾	...	...	51½c	5¾	...	...	...	...	13½c	5½	...	...
lderslie ...	80	6	...	...	30	5½	35	† 7	13	4¾	...	...	2	2
errindotty ...	120 p	6¾	35½c	†8½	39	6	25½c	† 9¼	21	5½	...	...	...	...
IT Co Kuduwa K...	207	7¼	151	†7 8½	22	5½	...	...	...	..	...	...	34	3 6¼
agbrook ...	131	6½	58	7¼8½	33	6	...	...	27	5½	...	...	13	3 6¼
embenard ...	58	5½	...	...	58	5 5¾	...	...	...	...	...	...	...	...
allardie ...	108	7	...	...	23	6	45	9½	22	5¼	...	...	18	4¾

Teas marked thus † are last of the Season.

THE PLANTER

Is a WEEKLY JOURNAL conducted under supervision practically skilled in planting matters. It contains leading articles by experts, short mofussil notes and letters from correspondents in the various planting districts, after-edits upon topics of general interest to estates managers and assistants, Calcutta Notes, Companies' Reports, Commercial Notes, Indigo, Coffee, Jute, and Tea Market Reports, Home News, Tea Sales and comparative tables showing the position and returns of Calcutta and London Tea Companies.

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Vanilla Cuttings, Rs. 10 per dozen.

Coca, small leaved kind for low elevations, Rs. 4 per 100; Rs. 20 per 1,000; large leaved kind for high elevations, Rs. 5 per 100; Rs. 30 per 1,000.

Giant Kew Pine Apple, Rs. 10 per dozen suckers; 5 dozens for Rs. 40.

Pepper, best variety, Rs. 10 for 1,000; new crop now ripening, 5,000 for Rs. 40.

Para Rubber. Orders being booked for the coming crop, available in August-September, quantity limited.

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Liberian Coffee. Orders being booked for January delivery, price according to quantity.

Cinnamon. Orders booked for May-June delivery, price according quantity.

Ramie. Seeds Rs.5 per ounce; root cuttings, Rs.10 per 100, and R per 1,000.

Fourcroya Gigantia, (Mauritius Hemp,) Rs.10 per 1,000 seedlings; la quantities on special terms.

Bowsting Hemp. Root cuttings, same price as Ramie; large quanti on special terms.

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PLANTING OPINION.

A WEEKLY JOURNAL

WRITTEN BY PLANTERS FOR PLANTERS.

VOL. III.] COONOOR, SATURDAY, MARCH 5, 1898. [No. 9.

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ADVERTISEMENTS.—From the 1st October, 1897, the charge for line advertisements will be: 4 as. per line for the first, 3 as. for the second, and 2 as. for the third and succeeding insertions. Five-line advertisements from Subscribers will be inserted for three issues for one rupee; non-Subscribers will be charged two rupees.

DOMESTIC OCCURRENCE.—The fee for inserting a domestic occurrence will be *One Rupee* for each insertion, payable in advance.

N.B.—Remittances should be sent to the Manager, "Planting Opinion," Esplanade Row, Madras.

IMPORTANT NOTICE.

The Business Offices of this paper having now been removed to Madras, all remittances should be made payable to the Manager of *Planting Opinion*, 3, Esplanade Row, Madras, who will also attend to all advertisements, &c.

Letters to the Editor should be addressed to Coonoor, as usual.

SEASON REPORTS.

NOTICE.

TO OUR SEASON REPORTERS.

Please post your next reports to reach Madras on Friday, the 11th March, 1898.

Season Reports should be sent to the Printers, Messrs. ADDISON & Co., direct, and not to *Planting Opinion* Office.

Coorg.

POLLI BETTA, 28*th February.*—*Weather.*—Fine with east wind at times. Clouds put in an appearance again to-day. Good rain at any time inside the 15th proximo would ensure good crops. *Crops.*—Last crop all over. Pruning nearing completion. Manuring in hand. *Labour.*—A commencement in paying off labour will probably be made by the 12th proximo. *General Health.*—Some improvement in general health.

Nilgiris.

COONOOR, 24*th February.*—*Weather.*—Fine again now with the high winds we usually associate with March. *Crops.*—Good blossom out in one or two estates. Tea coming on rapidly after pruning unpruned fields flushing heavily. Grain rates still high. *Plant-diseases.*—Generally conspicuous by their absence. *General Health.*—Fairish. *Interesting Items.*—Coast prices for coffee are Rs.9-8 to Rs.9-12 parchment, and no keenness to buy even at these rates. Three to four years ago prices were as high as Rs.15 to Rs.17.

NELLAKOTTA.—2*nd March.*—*Weather.*—The rain of 15th ult. was very partial, varying from nearly an inch in the east of the district to 4 cents in the extreme west. Large blossom out in a few instances, but only a sprinkling on the majority of estates. A good downpour in a week or ten days would be just opportune. *Crops.*—Coffee crop over, probably the worst on record. The coming crop promises to be a very fine one. Trees in excellent heart, and a mass of healthy spike. All depends on timely rain. *Plant-diseases.*—Coffee has been singularly free from leaf disease all through the season. *General Health.*—Fair. Colds prevalent. *Labour.*—Most estates have paid off, pruning in some cases having been deferred. *Interesting Items.*—Difficult to find in this "land where all things always seem the same"—

except coffee! One estate is opening largely in tea this year Fifty acres were opened last season, and this is looking magnifi cent.

PRODUCERS Versus TRADERS.

The Exchange Question.

The movement that the U. P. A. S. I. has set on foot to effect a reversal, if possible, of the present disastrous currency policy, has met with singularly ill-informed criticism from the press of South India. That this was inevitable we can easily understand from the fact of the Presidency papers being almost completely out of touch with needs of the producing classes. The fault, if it is fair to call it a fault, is natural enough. Newspapers are business undertakings, and have to cater for the wants of their subscribers, adopting the principle of serving the interests of the greatest number. Outside the ranks of planters, we venture to affirm that subscribers to the daily papers are rarely found among the agricultural classes. It is the educated and professional classes, business men, lawyers, Government servants and others, who form the great bulk of subscribers. Under these circumstances, it is not wonderful that when the most educated section of agriculturists, the European planters, attempt to speak out for the producing classes of the country, they are woefully misunderstood. They are accused of seeking their own profit in the general ruin of the country, of incapacity to understand the requirements of their own trade, and a lot of other absurdities of the same nature.

And why should such bad faith be imputed to them? Simply because they, in common with all Indian producers, want a cheap silver currency instead of the artificial rupee so desired of export merchants and Government. The public cannot grasp the fact that the interests of planters are identical with those of the rest of the agricultural classes. We are more charitable than our critics, and attribute such lack of understanding to ignorance rather than malice.

The *Madras Times* doubtless voices the opinions of its particular public when it attempts to separate the interests of agricultural labourers from those of their employers. Our contemporary boldly affirms that a high exchange must necessarily result in the higher purchasing power of the rupee in India. With regard to the labouring classes, the higher purchasing power is almost nil, for what do they consume of Europe goods? Indirectly food grains may be cheaper, by the stifling of exports and consequent temporary surplus. But this would be soon corrected by the necessary shrinking in cultivation due to lesser profits.

The *Madras Mail,* which has always shown itself a staunch supporter of planting interests, does not express an opinion on the matter directly. It allows instead "an acknowledged authority on Indian finance" to deliver himself of as acrid and misinformed criticism as it has been our fortune to read.

The arguments employed in the first half of the article are disingenuous to a degree. The great contention of Indian producers is that the present artificial state of the rupee acts as a crushing indirect tax on exporters. With a low "natural rupee," exporters could well afford to have a small direct tax imposed to recoup Government its loss on exchange, as the increase in rupee profits would be comparatively enormous. It is puerile, therefore, to assert that planters propose encouraging and discouraging expor in the same breath. Every agricultural industry in t country would be in the same boat. The sugar produce of Madras and the North-West, to whom the *Mai* "financial authority" appeals, would benefit just as mu as coffee or tea or wheat producers, though in a differe way. A low exchange would act as a very effectu duty on imports of foreign sugars, while at present exact the reverse is the case. The same writer then touches tea, and asks planters if they wish to send tea to Englan Their answer would be a little different to what he expec For England is overstocked as it is. The English mark is no longer big enough, and the chief endeavour now is conquer new markets in America, Russia and on the Co tinent generally. China has been practically ousted fro England, but her total tea exports are none the less ju as big as ever they were. Likin, export duties and wh not—the knowledge of which as they affect the China t trade is not confined to "financial authorities"—China still in almost full possession of the world's markets ou side of England, and the higher exchange goes, the le able will Indian planters be able to oust her. Briti energy combined with "perfect freedom" of trade c accomplish anything. But where is this "perfect freedom in a land where an inflated rupee acts as an almo overwhelmingly huge export tax?

Much has been said on the currency of competi countries, and the arguments used are of undoubted weig Yet whatever their currency, it would not alter the fa that in Indian agriculture the purchase value of the silv rupee remains practically undisturbed by the fluctuatio of exchange.

The *Mail's* financial authority then touches on the effe of exchange on the sterling price of produce. It is a ca of *post hoc propter hoc* argument with him. Because pric for tea fall currently with the fall in exchange, *therefore* t two are indissolubly connected. Delightful logic! L him turn to coffee, and see how his theory will help hi Again, if low prices are paid in years of low exchange, w do not they rise when the exchange is high? Truly gre is this authority on Indian finance.

NOTES.

Mati tea. From a recent case in the Lond Law Courts, we learn that an attem has been made to develop the sale of Mati or Paraguay t in England. So far the success has been inappreciable.

Light railways in Ceylon. In the railway extension p gramme of Ceylon, which is expect to be taken in hand in the n future, we note that out of the four new lines three are the light 2 ft. 6 inch gauge. Their cost varies fr Rs.30,000 odd per mile to Rs.57,000, according to t difficulties of the route.

New Caledonia. The French are doing their b to encourage tea-growing in N Caledonia, the climate and soil of which is said to admirably adapted to the product. That may well be, b tea, more than any other tropical culture, needs che

labour. We have no fears that the French Colony will ever prove a serious rival to British-grown teas.

Tea prices and exchange. In the Ceylon Planters' Association Annual Report for 1897, we notice that the Colombo average price fell to 34⅛ cents as against 41½ cents in 1896, while the London market fell to 7¾*d.* against 8*d.* in 1896. The average exchange in 1897 was 1/3 21/32*d.* against 1/2 10/32 in 1896. The latter exchange at the 8*d.* average would equal 55·888 cents gross value, against 49·499 cents at 7¾*d.* at the higher exchange. Similarly Colombo tea in 1897 at 34·12 cents would have equalled 5·34*d.* against 41½ cents or 5·94*d.* in 1896.

Rubber. Rubber still remains king, says the *Produce World*. At the last sales there was only a moderate supply on hand, while there were numerous inquiries, consequently prices all round advanced 1*d.* to 2*d.* per pound. There are also indications of still further improvement, as fears are expressed that future supplies will not increase in ratio with the demand, owing to growers commencing to bleed their rubber trees too early in their anxiety to share in the good prices now being obtained. Growers will do well to remember that it is fatal to bleed trees too early, and that with a little more maturity rubber plants give much better results.

Various products. From a home exchange we learn that at the last sale of *cardamoms* on the 20th January, it was thought prices would show a slight fall, but after the first few lots a brisk competition set in, and not only were late prices fully maintained, but in many cases an advance of 2*d.* was obtained. Mysore realised as much as 4*s.* per lb., Malabar 3*s.* 9*d.*, and Long Native 3*s.* 7*d.* The *Cocoa* market, just now, is very favourable to shippers, as, though large supplies were to hand at last sales, especially of Dominica, all kinds were dearer than at the previous auction. *Gums* of various kinds, just now, are too plentiful to command good prices, there being nearly 6,000 more packages in stock than at this time last year and very little demand. Ghatti is particularly plentiful.

The Indian tea crop. The original official estimate by the Indian Tea Association of last year's crop was 156½ million lbs. odd, this was revised to 148 M., while the actual outturn was 148¼ M. Of this amount Assam contributed 58 M., Cachar 20¾ M., Sylhet 25½ M., the Dooars almost 24 M., Darjeeling 7¾ M., and the Terai 3¾ M. The remainder was made up from Kangra, Dehra Dun and other districts.

The total sailings from the 1st April 1897 to the end of January were a little over 141½ M. against 138 M. and 128⅓ for the two previous years. Shipments to Great Britain are almost 129 M. against almost 125 M. last year. Australia still shows a slight falling off, as also does America, compared with last year.

Coffee and cardamom husks. Not long ago, states an exchange, there was a good business done between Colombo and the Persian Gulf ports in coffee husk, which was practically refuse thrown away by planters after pulping and cleaning the coffee berries. The Arabs, especially, make use of the husk in place of the civilised preparation of café noir. We now hear that, besides coffee husks, dried cardamom husks have a marketable value, and that shipments of these are being made to some Continental ports. In grading the cardamoms, the "splits" are utilised for this purpose after "seeding" them, and the husks can be placed on the market without being thrown away as refuse. Planters would do well to note this fact, and, in sending the different grades, to add "husks" to the existing classification.

Scientific planting. In another column will be found a vivacious criticism by "Errin Gobra" on a recent editorial on the manuring of estates. We quite agree with our correspondent that scientific assistance would be far better than that from a committee of investigation composed of planters. But as it seems that South Indian planters will have none of the former, we suggested the latter plan as a *pis-aller*. It is amusing to note, however, how "Errin Gobra" gives himself away in the latter part of his letter. He begins by implying that every planter knows what manure best suits his estate, and then involves a scientific expert to tell him how to go about it! For all that, logic or no logic, we wish we received more communications on the subject, as betokening an interest in scientific planting that is at present sadly shy of discovering itself.

Coffee in Hawaii. A Ceylon planter brings back an attractive picture of coffee planting in Hawaii, which our readers will remember was the scene of the famous lady-bird experiments. On his way to 'Frisco, a fellow-passenger on the steamer revealed himself to him as Mr. Caine, formerly of Ceylon, and told him how well he was doing as a coffee-planter in Hawaii. Mr. Hawke was so interested that when he reached 'Frisco he went back to Hawaii, and he now returns from there perfectly enamoured of the place. He says the island is most suitable for coffee planting, and a good acreage is already under cultivation, growing in rich volcanic soil—a soil that could not be found in Ceylon anywhere. Labour was plentiful, shipping facilities excellent, and Hawaiian coffee was fetching 80*s.* a cwt. He secured 400 acres of land at an elevation of 2,000 ft. from the Provisional Government, and he returned at once to Ceylon to make arrangements to sell Orien estate and settle down in the Sandwich Isles to plant up his new property. Almost all the coffee there is Arabian.

Coffee and tea in America. The figures showing the consumption of coffee and tea per head in the United States for the last 26 years are interesting reading. In 1890 only 1·10 lb. of tea was used per head, while coffee was fully 6 lbs. In 1875 tea increased to 1·44 lb. and coffee to 7·08. In 1880 tea was a fraction down, *i.e.*, 1·39, coffee was 8·78. In 1885 tea sunk to 1·18 lb., while coffee rose to 9·60 lbs. In 1890 tea rose to 1·37 lb., while coffee sank to 7·83 lbs. In 1896 tea was down again to 1·31, coffee rising to 8·04. The highest *per capita* consumption of tea was 1·54 lb. in 1881, while coffee was highest in 1892, being 9·61 lbs. of wines, distilled spirits and malt liquors, the respective consumption in 1870 was ·32, 2·07 and 5·31 gallons per head; in 1880: ·56, 1·27 and 8·26 gallons; in 1890: ·46,

1·40 and 13·67 gallons; while in 1896 wines fell to ·26 gallon, spirits to 1 gallon, and malt liquor rose to 15·16 gallons. Thus it will be seen that the consumption of coffee is steadily increasing, while that of tea is stationary. Wines and spirits are falling in favour, but the consumption of malt liquors is increasing greatly.

Carpentry "Kanaks." The following details may be of interest to our readers. They were given us by a reliable Nilgiri planter; the rates are Coonoor ones.

Some Kanaks.—Cost of withering racks. A rack 45 × 4 = 180 sq. feet per shelf will cost as follows for each shelf put in :—

	Rs.	A.	P.
Carpentering @ 9p. per foot	8	7	0
Ten scantlings each 12 feet long	2	0	0
Nine feet of uprights of Bluegum	0	12	0
Eighty bamboo-reepers @ 5	4	0	0
Total Rs. ...	15	3	0

say 16 pies per sq. foot. This includes cost of pulleys and boats to draw sheets on and off the shelves.

Jute hessian costs Rs.16 per 100 yards (45 inches wide), or about 2½ pies per s. ft. of rack to cover (*i.e.*) 1 yard costing As.2-8 covers 3 × 4 or 12 sq. feet.

Buildings.—The following should be noticed. A contractor charging Rs.20 per 100 c.ft. of brickwork and putting in a factory door 6′ × 3′ expects to be paid for the brickwork; the door space occupies (*i.e.*) say 6 × 8 × 1½ = 72 c. ft., besides charging his victim Re.1-4 per sq. ft. for the frame and shutter. This is another one of the iniquitous Nilgiri customs that should be broken through. It is not allowed by the P. W. D.

Writing to the *Planter*, its Coorg correspondent remarks :—

Storage of coffee seed. "I see storing tea seed talked of. How long does tea seed keep? I am prompted to make the enquiry because coffee seed does not appear to retain its vitality long, not even a twelvemonth apparently. This has been discovered after repeated trials. Old planters have not been sure about the matter, and after years have subjected seed to further tests as if deeming previous trials inconclusive, but invariably with the same result, so far as I am aware. It would be interesting to know if others' experience differs from this. It was supposed that seed dried in cherry would retain its vitality longer than in the parchment; perhaps it does, but still in the result it has not been much more satisfactory. I know of seed dried in cherry in December of one year which has refused to germinate in September-October of the following year. Sown in the nursery it all rotted away! and seed got in cherry from Santos went the same way. But seed buried some depth in the ground, even in the parchment, seems to retain its vitality more satisfactorily. At least I know of one case where the seed gathered in December of one year and treated in this way came up with but few exceptions when sown the following September. Contact with earth would appear to be what is wanted to preserve the vitality of the seed, for see how the seed dropped from the trees come up with the setting in of the rains. Some seed, of course, would appear to retain their vitality longer than others, or how else could we account for the successful introduction of other species of coffee into countries separated by great distances from their native habitats? Think of the long journeys that had to be accomplished in the days of sailing vessels."

Salt and leaves. "Plants growing near the sea have thicker leaves than those growing inland. Apparently the sea-salt is the cause of this phenomenon, as plants cultivated in artificially-salted soil produce thicker leaves." Thus writes an exchange. If true, the fact may have an important bearing on the question of rendering coffee immune to leaf disease.

A Mosquito cocoanut plantation. Mr. Rowland W. Cater gives fascinating description of cocoan planting on the Mosquito Coa Our necessarily brief abstract is bereft of much of the cha that invests the original article, but solid facts are wh we want to give our readers. To begin with, sea air, a better still, sea-spray are essential for the well-being the tree. The most suitable soil is coral sand intermix with earth. Nurseries are formed in the usual manner placing sound nuts, in their husk, upright close together rows under a pandal. The clearing and burning of jung is necessary as in all plantations. Bury the sprouted n in pits till two-thirds deep only at a distance of 30 feet ea way. The young plants should have the ground for ten f round kept perfectly clean and well-stirred. Attention this early stage makes the trees bear twice or three tin as early as they otherwise would, some blossoming as ea as the third year. There is no picking of crop; the n fall down of themselves when ripe; the coir of course i valuable bye-product. A minimum crop of 100 nuts p tree may be expected, which is given regularly the wh year round.

Good land on the Mosquito Coast is sold at 5*s.* per ac or leased at three farthings per acre upwards. The c per tree up to the fifth year will be 5*s.* The capi required to produce one thousand nuts will thus be £2-1 Harvesting costs 2*s.* 6*d.*; freight to London £2, whi deducted from the London price of £4 per thousa leaves a profit of £1-17-6*d.*, close on a hundred per ce annual profit. There are other ways of selling the crop, i by expressing the oil, for a gallon of which it takes nuts, and exporting both oil and oil-cake.

How flowers attract insects. For some time past naturalists ha been exercising themselves over question of what really constitu the attracting element of flowers visited by insects. T result has been that numerous experiments have be performed with the view of settling this point. Profes Plateau, of Belgium, has devoted considerable time a attention to such experiments, and his conclusions distinctly interesting. In the "Bull de l'Aacd. Sciènces de Belgique," he sums up the results of investigation :—

In seeking for pollen or nectar, he says insects are guid only to a subsidiary extent by the sense of sight. Th continue to visit scented flowers after the coloured pa have been almost entirely removed. When flowers of same species vary in colour, they exhibit neither prefere ces nor antipathy for one colour over another. Inconspi ous flowers, hidden among foliage, attract large numb of insects. Artificial flowers made of paper or calico, ev when brightly coloured and closely resembling real flowe are not visited by insects; but they are when made green leaves which have a vegetable scent.

If flowers which have little or no nectar, and which therefore habitually neglected by insects, are smeared w honey, insects are attracted in large numbers. On the ot hand, if the nectar is removed from flowers habitua visited, their visits cease at once. The author has p especial attention to entomophilus flowers, and finds t their exemptions from the visits of insects is due mainly their not providing them with honey. From all these fa

Plateau draws the conclusion that the guiding sense to ects in visiting flowers must be chiefly the sense of smell.

London "Times" n exchange.

In discussing the question of "A Gold Standard for India," the writer of the *Times* article on Indian affairs 's: "The truth is that there are three parties to the ques- n, each of which has its own interests to consider. The st, and the most powerful in this country, is the British nufacturer and the Indian merchant in British goods, o naturally desire to sell to India as much as they can, d who wish to keep up or to raise the sterling equivalent the rupee. The second is the Indian producer, who has compete with rival producers in the silver-using countries the tropics, and who finds himself placed at a disadvan- ge if the rupee is artificially raised in India. So keenly is is felt that, in the great British Indian industry of tea- nting, companies will sell in the London market, while lowing so much more profit in their yearly forecast for ch farthing or rise in prices, also estimate so much less of ofit for every thirty-second of a penny in the rise of the pee. These two interests, namely, those who produce in gland and wish to sell in India, and those who produce India and have to sell in competition with the silver-using untries of the world, naturally take an opposite view of easures intended to bear up the exchange value of the pee. The third party is the Indian Government, which s to discharge large gold obligations to England for loans d other payments, and which desire to do so with as small number of rupees as possible. Whatever may be the tails of the scheme now under the consideration of the overnment, this conflict of interests should never be lost ght of. In any practical measure it will certainly have to reckoned with. The problem is not only complex in itself, t it involves consequences of the most serious import to nglish manufacturers on the one hand and to Indian oducers on the other. Meanwhile the railway towards londike, and the 74¼lb. mass of gold reported from beria, open up possibilities of change in the market ratio the metals which, though not likely to produce any mediate tangible effect, cannot be entirely overlooked."

ne and low grades of coffee.

In an article dealing on the difficulties of grocers in purchasing suitable grades for their customers, e *Grocer* writes in its issue of 5th February :—"For several onths past, and particularly within the last few weeks, ices of coffee have diverged more widely apart than ever, ose for the finer qualities advancing still higher, while e current rates for inferior and desirable sorts have escended to a lower point than in 1897 * * * * From the ost trustworthy statistics prepared, it appears that it is ite certain that there is a great and increasing scarcity fine coloury descriptions suitable for consumption in is country; and it is said that the production of coffee tside Rio and Santos, which happens to be the very sort e want most, does not augment as it should, notwithstand- g the exceedingly high rates it commands." * * * * ur contemporary suggests blends of good Santos and rime Costa Rica or Guatemala, which would give a rich ick liquor with plenty of aroma, such as would please e palates and suit the pockets of the majority of con- mers. A preparation of the kind thus described could be retailed at 1*s.* per lb., and at the same time yield a profit of 25 per cent. on the original cost.

"It is almost useless to expect a glut in the supply of fancy coffees simply because there is a superabundance of the common grades, as the conditions of soil, climate, and cultivation in one quarter of the globe differ vastly from those in another, and it is precisely in those countries where the crops are spoken of as being the lightest that the quality and outturn are reputed to be the finest, and *vice versâ*. Under these circumstances the trade will do well to secure all likely parcels of clean coffee on as reasonable terms as they can, for, according to present appearances, nothing is to be gained by waiting for freer arrivals of the new crops from the East Indies and central America; and, if accounts are true, consignments this season will probably fall off sooner than they did in 1897. * * * Although there has been a great deal of talk about the severe reduction in prices of ordinary qualities precipitating a material depreciation in the value of superior coffee, the likelihood of such an event is rather remote."

Cultivation of vanilla.

In his report to Mr. Chamberlain on Seychelles, Administrator Stewart says: "The vanilla crop of last year is the largest that has ever been grown in Seychelles—63,000 lbs. The prices ruling during the year on the London and Paris markets have also been most favourable, and the value of the crop has been declared at Rs.9,36,000. The large output of vanilla has given a fresh impetus to its cultivation, and a very large quantity has been planted during the past year. When the country is opened up by means of roads, as will shortly be the case, many acres of vanilla land will no doubt be taken up which at present are uncultivated, owing to the difficulty of transport. In one district alone, the Mare aux Cochons, to which a new road will be opened, there are about 5,000 acres of virgin soil well suited to vanilla. The cultivation of vanilla only dates back to about twenty years ago, and is only now beginning to be thoroughly understood. The Mexican system of allowing the vines to grow under trees nearly wild is almost universally adopted at present, and is a decided improvement on the old system of training the vines on artificial supports. I trust that the new mode of cultivating it will go far to ensure regular crops. Nothing pays better than vanilla. Its production costs the planter Rs.3 per pound, and as prices vary from Rs.8 to Rs.16 the pound, a net profit of from Rs.5 to Rs.13 is the result. This year the average price was Rs.15 the pound. The yield may be taken to be 200 lbs. an acre. Taking, therefore, an average of Rs.10, an acre of vanilla should produce Rs.2,000. Most of the land in Seychelles is in the hands of private owners, and it is difficult to estimate its cost, but it may be taken that land can be bought at from Rs.100 to Rs.200 the acre. It has been stated that landowners are reluctant to part with their land, but I do not apprehend much difficulty on this score, provided that purchasers are prepared to pay ready money. There is some land belonging to the Government well adapted for vanilla cultivation which can be leased for periods varying from nine to twenty-one years. Seychelles is unfortunately almost a *terra incognita*, for I cannot help thinking that if the scores of young Englishmen who leave the mother country year after year for other lands knew of it, they would give the preference to an

English colony which offers advantages not to be met with elsewhere for the investment of small capital, say £1,000. In 1882 the yield of vanilla was 2,400 lbs., whereas last year, as stated above, it was 63,000 lbs."

To make a plantation pay.

A Jamaican planter, undismayed by the critical position of the sugar industry of the Island, gives some sensible and encouraging advice in a letter to the *Produce World*. It is briefly to let all land that does not bear a paying crop go out of cultivation. An estate may be of great extent, reckoning in all land under crop—good, bad and indifferent. It may have large total crops, perhaps twice as large as some of its smaller neighbours. Yet for all that it may suffer a direct loss each year. If it costs, say, £7 to grow a ton of sugar, it is as plain as a pikestaff that it is the height of folly to cultivate land that will not produce over the ton. What is it then that induces planters to actually throw away their money on such land? If they devoted all their attention only to such land as yielded a crop large enough to pay all expenses, and yet give a surplus, their present losses would be turned into profits. Did this question only concern sugar-planters, we should not have troubled to discuss it, but it affects coffee and tea planters just as much. What is the cause, we again ask, of such blindness to the first principles of business? It is a very simple one. Planters have got into a stereotyped way of regarding their plantations as a whole, and not taking the trouble to ascertain exactly what each field is yielding. There are always "bad bits" in every estate, an eyesore to the owner and manager and a scoff to visitors. There are also many indifferent fields that also do not pay their expenses. Yet until the manager keeps a separate record of those particular fields, he only has a vague idea that they might as well be abandoned. "Might as well"! Fancy having to remain in doubt on such a point. A few years' records of expenditure and income on those fields would very clearly settle his mind one way or another. It may be urged that an abandoned field in the middle of a plantation would be a breeding-ground for pests and plant-diseases of all sorts. So it might if it were left to grow at its own sweet will. The obvious thing to do is to clear and burn it, planting it up with quick-growing timber trees to act as a shelter belt. If trees of economical value, as regards their crops, could be chosen, so much the better. Camphor, mahogany, nutmegs and a host of other valuable trees might be planted on such land. On a tea-garden, fuel-trees would probably be the first consideration.

COFFEE SHADE TREE.

Sun-dried Erythrina Lithosperma loppings, &c., contain per ton:—

61·50 lbs. Nitrogen.
57·38 „ Potash.
14·92 „ Lime.
13·68 „ Phosphoric Acid.

Seed cured under Messrs. Sutton and Sons' advice.

Orders should be booked early for the coming crop of seed from the parent trees of above analysis at Rs.6 per pound containing about 2,000 seeds. *Germination guaranteed.*

Only thornless variety extant, and is not procurable anywhere save from the

MANAGER, ARIENKOW ESTATE,
Shencottah.

To be a successful planter nowadays needs other th than sufficed in the old days. Estate accounts, in the ma in which they are usually kept, are woefully inadequat their purpose. Complicated systems are not advoc but there is a very real danger of confounding simp with vacuity.

LETTERS TO THE EDITOR.

YOUNG PLANTS DYING: AN INTERESTING QUERY.

Sir,—It not unfrequently occurs that young plants w have successfully stood their own throughout the hot we die off after the first spring showers.

Is this the result of a sudden expansion or contraction o soil round the rootlets of the plants which tears them— what cause do your most experienced friends attribute result?

Plant

A REMINISCENCE.

Sir,—The 11th February 1889 found me sitting ov "kill." The veriest tyro will readily comprehend wh mean. I was perched upon a hastily contrived "mac raised about 12 feet from the ground. Sitting back to against me was my trusty shikar "Bally Kristna." Cir stances necessitated my allowing B. K. to assume this r familiar position. In front, below, to right and to left, stret a wild expanse of Indian jungle, awful in its primitive gran sublime in its vast loneliness.

We were waiting—Bally Kristna and myself—for "Stripe make his appearance. For an hour we had already waited scene around us remained unchanged; the silence, nov coming almost unbearable, was absolutely unbroken. "S thing" was about, and in knowledge of the existence of "something" lesser animal life all "lay low." The " not 25 yards away, turned its ghastly side (the other hal been metamorphosed into "tiger") red and torn, stained bleeding up to the heavens, in mute appeal for vengea 5 P.M. passed, 5-30 passed, 5-45 passed, when—"click," a had snapped. Now in the ordinary course of events, a will not snap unless pressure be brought to bear upon it that it was a tiger on the move I felt sure from the d like stillness which followed the snap. For the next ten mi nothing more did we hear; at the end of that time, Kristna silently pointed to a thicket 40 yards off. I looked saw,—imagine my feelings, ye Nimrods—a head, slowly emer from the bush, followed by a neck, then a body, lastly a tail full in the warm glow of a cloudless sunset stood the magnificent specimen of a tiger I had ever beheld. Wh head, oh! what a head, so clean cut, so well-shaped, such as Nature's mould can turn out. A snowy white shirt front, be fully striped too, so clean, so wholesome, so grand he lo standing there in the full pride of his strength and be The "shades of night were falling fast" as I slowly raised rifle, brought it to bear, drew an exquisite bead and fired. noble existence less in the world, and I felt almost sorr what I had done as I trudged my weary way homewards.

SCIENCE FOR PLANTERS.

Sir,—In your editorial *re* "Manuring of Estates" in *Planting Opinion* of the 12th February, and the suggestion a Committee be organised to trot around collecting informa I regret to say I am one of those "rapidly" decreasing that say "with sublime confidence that every man know methods of manuring that best suit his estate."

s you say, "exposure, quality of the soil and subsoil, fall," to say nothing of altitude, temperature and aspect, uld be carefully compared. Now I ask you, how many men ong us are capable of even finding out the percentage of h a simple substance as lime in our soils? Or even to ertain the physical properties of a soil. And after having an analysis are capable of saying, with any degree of cer-ty, that such and such a manure will give such and such a ult. And where are you going to get the "men of known ity and integrity" to bum around for three months from rg to Cape Comorin? And having visited and interviewed me half-a-dozen or dozen representative ones," who will dertake the labour of love involved in tabulating all the rmation gained? And who would follow their recom-ndations?

Of what practical use are the systems of one district to those another? Will the system of working and manuring on s in the Nilgiris at 6,500 feet help Wynaad or Tinne-ly at 1,000 feet, or even a man at Gudalur? A system of k and manuring carried on on one face of the Baba Boodem s not pay on another.

And what is the use of collecting the information? Will you a collection of solid petrified facts for a series of years? d if you do get them, will they be of any value unless you o get the rainfall, length of the monsoon—and of the ought—the temperature, and goodness knows how many other ditions that are necessary to make the facts of any value?

How many of us have analyses of our soils, and know their ysical or mechanical condition, and have any but the vaguest a of what they need?

One man swears by cattle-manure, another oil-cake and bone, d a third on nitrates and supers. They all contain more or s what is required for growing coffee and getting paying ps. Nine out of ten don't know what the chemical con-tuents and actual money value of the manures they use are. ey stuff in manure, as it's hopeless trying to do anything thout it, and are governed more by what is most easy to get and t out than anything else.

If you will allow me to make a suggestion, instead of letting a avelling Committee loose among us, I say go down to the bed ck. Let the Associations engage the services of one or more entific practical Agricultural Chemists—ones that can analyse ils and manures and have had practical training and ex-rience in all the most up-to-date systems of scientific agricul-re, and are able to apply their knowledge to the changed condi-ns in which they will be placed. Let them for a small fee (in dition to the stipend paid by the Association) analyse soils d any manures we may have offered us and give us advice as what should be done to the former and paid for the latter, d what should be avoided.

To aid the Chemist, anybody requiring his services must, of cessity, give him all particulars as to climate, altitude, system rried on, manures used and results obtained. Let the Chemist bulate these, adding the recommendations made by him and e results obtained. Here you will get a system, and many en will take the advice of an expert for which they have id, when they won't of a brother planter, however good may be, and results will be recorded and a basis for further vestigation established. And then—why, then, we shall have mething to go on with, and when we have found out every-ing, and are only looking out for the millennium some cuss ll go and invent synthetic coffee and——But we have not got ere yet. What with "Nitrogen noodles," "Tara-rara boomed ade," Any port in a storm "Cocky olli birds" and Leaf-seased qu——acks, "Ye dunno where ye are" in Coffee—t just yet, not by a long way.

"ERRIN GOBRA."

GENERAL ARTICLES.

THE MADRAS AGRI-HORTICULTURAL FLOWER SHOW.

THE annual flower, fruit, and vegetable show was held at the Society's Gardens, at Teynampett, on Saturday, the 26th February 1898. The attendance in the early morning was not so good, neither was the show of vegetables as large as in previous years. The arrangements, however, were, as usual, all that could be desired. H. E. the Governor was not present on the occasion. It will suffice for the purpose of a report if we confine our notice to the prize list enumerated as extras offered by the Society and awarded by the judges, with their remarks thereon.

A gold medal for the best sample, and a silver medal for the second best sample, of tea, so moderately priced as to be suited for general consumption. Gold medal awarded to Glendale Tea Estate. Silver medal not awarded.

For the best collection of Green Forage.—Rs. 10, divided between the Saidapet Farm and the Government House.

For the best collection of Vegetable Oils.—Rs. 10. Two exhibitors, Nos. 7 and 3. The prize is awarded to No. 3, as displaying a larger variety, also showing the sources from which the oils were obtained.

For the best collection of Fibre plants and cleaned Fibres. The fibres must have been recently cleaned. No prize will be awarded for an old collection.—Rs. 15, Moonesawmy Mudally. Two exhibitors, Nos. 4 and 5. No. 4 exhibits about 50 varieties of cleaned fibres, including fibres of Bohemia Nevisa (Rhea) and other interesting fibres, is awarded the prize.

For the best collection of Economic Plants growing in pots, such as young timber and other useful trees.—Rs. 15, Mr. C. J. Hay-Ellis.

For the best collection of Dyes, Tanning Materials and Mordants.—Rs. 10, divided between S. Soobaroyloo and Saidapet Farm. Rs. 6 to the former, and Rs. 4 to the latter.

For the best collection of Food grains other than Paddy.—Two exhibitors. The prize is awarded to No. 2 collection as being the best, and showing a larger variety.

For the best collection of Bazaar Medicines.—Rs. 10. Two exhibits, Nos. 6 and 9; both are large collections and are of equal merit. The judges recommend the prize being divided between the two competitors.

For the best made garden pots, pans, &c., of plain and fancy varieties of local manufacture, Rs. 10. There are four exhibitors. No. 4 is awarded the prize; the articles exhibited being well turned, of good finish, and displaying a large variety of novelties. Among the exhibits is one by Messrs. Henke and Co., of Calicut, who show a very fine collection of artistically finished flower pots and vases, which are displayed only for exhibition.

Messrs. Parry and Co., the Madras Agents for Jadoo, Limited, issued some leaflets about this fibre, from which we gather that this "fibre is recommended as a forcing material for tea, coffee and other nurseries, and as a mulch for protecting the roots of plants in hot, dry weather, and trees in a poor dry soil. In this manner it keeps the roots cool, and increases root growth, which greatly benefits the trees and plants."

SOME "NEW" PLANTATION PRODUCTS.

Cacao. In the annual report, the forty-fourth, of the Planters' Association of Ceylon for 1897, there are some interesting notes on certain products which have, most unwisely, received but scanty attention in the South Indian planting districts. In the report we learn that the 1897 cacao crop of 35,000 cwts. was 1,200 odd larger than any previous year. The market is firm and rising, the consumption being apparently greater than the production. The cacao disease or canker, which is now being investigated, is held to be a fungus attacking the bark of trees, and is observed to be more active after the North-East rains. It is especially fatal to the Ceylon Red Cacao or Criollo, but the Forasteros seem immune so far from its attacks. The statistical position at home is very sound, the deliveries for the past few years having far exceeded the imports, the stocks held in London and Havre now being only 160,000 bags against 271,000 in 1896, 265,000 in 1895 and 210,000 in 1894. Prices for Ceylon, in sympathy with those for all other growths, with the exception of fine grades, are fifty per cent. higher than during the previous year.

Rubber. The lower tea districts in the Island have now a considerable area under rubber, the Kalutara yield from the older trees of 3 to 4 lbs. per annum being highly remunerative considering the small cost of cultivation. It takes, however, eight to ten years before yielding crop.

Cocoanuts. The season has been a particularly favourable one, owing to no long-continued droughts. The crop consequently was larger than 1896, which prices have been well maintained until the close of the year.

Cardamoms. The cultivation of cardamoms during the past three years has received considerable attention in the few districts where this product is found to grow profitably. These are principally within the Kandy radius at elevations from 3,000 to 5,000 feet; Medamahanuwara, Nitre Cave, Matale, and Hewaheta districts showing about the largest acreage. In many districts a good deal of this cultivation has been abandoned, or cleared out for tea and other products during the past ten years, where it was found unsuitable and gave but poor returns. The cultivated acreage last year (not including native gardens) was only some 5,000 acres, and this includes a number of young clearings. Going back to 1880-81, cardamoms were quoted at over 9*s*. per lb. in the London market, but fell in price steadily each year till 1895, when they went down as low as 1*s*. 10*d*. per lb. However, during 1896-97 prices again advanced in favour of growers, and the London market is now quoted at from 3*s*. to 5*s*. per lb. for well-cured cardamoms. As curing is rather difficult on most of the estates owing princip weather, the crops are largely sent to Colombo in a or semi-cured, or dry state, and there finally cure shipped to Europe. There is also a good local dema the Calcutta and Bombay markets. The export fo was 463,233 lbs. and for 1897 551,463 lbs., the va which is considerably over one million rupees. Th year's exports show an increase over any previou from Ceylon, and prices realised have been satisfact growers. It is difficult to arrive at any reliable es of the cardamom crop for 1898, as natives are growi product now to a large extent in their villages, and the local market, but it is doubtful if there will be increase in exports over 1897, as that crop w exceptionally good one. Theft of cardamoms, like is still prevalent, and more so where estates are villages. The thieves do much damage when the knives and cut racemes with fruit in a wholesale ma taking green and ripe fruit alike. The only remed these depredations is to have constant watchers.

Rhea, &c. The Committee of the C. having received an offer fr London Company for the treatment of Rhea Fibre a a ton for the Ribbons, felt bound to state in reply tha price offered was inadequate to pay for its cultivati Ceylon, and that the difference between the price o for the Ribbons and the value of the prepared a appeared to be out of proportion. The following are ex from the Governor's message and address to the C Legislative Council published recently in the Goverr *Gazette*:—"It is intended to organise a syste experimental cultivation of economic, rare or new pla the Royal Botanic Gardens, and the increased provis Rs.3,950 practically represents the additional expen required to carry out proposals made by the Director connection with this scheme, it is proposed to atta Scientific Assistant to the Department, and to secu possible, the services of a young man with a traini the study of fungoid diseases for this post. A su Rs.3,931 is included for the completion by Sir J Hooker of the publication of the 'Handbook to the of Ceylon' which was interrupted by the death of th Dr. Trimen." Again, "the encouragement of new pro is an essential duty of the Governor of this Colony. chief interest this year has centred in the Para rubbe the seed of which there has been a great demand, far

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Map of Ceylon Plantations, Plain Rs.8. Inga Va, Rs.2-8. Areca As.12. Cocoanut Planter's Manual, Rs.4-10. Ceylon Manual of Ch Analyses, Rs.3-10. Tobacco Cultivation, Rs.3-10. India Rubber (the Press). Coffee Planter's Manual (now in the Press). All about Rs.3-10. Coffee Tree and its Enemies, Rs.1-8. All about Grub, Brazil as a Coffee Country, Rs.1-8. Cardamoms, Re.1. Ceylon Soils and Manures, Rs.1-9. All about Aloe and Ramie Fibre, Re. 1. Buildings, Rs.4-4. Coffee and Chicory, Rs.1-13. Coffee Cultivat Ceylon, As.5. Tea Cultivation and Manufacture, As.5. Tea Cultiva Ceylon, As.6. Tea at high elevations in Ceylon, As.3. Manuring Estates, As.8. To Economise Labour Supply, As.12. Planting, Pruni Preparation of Tea, As.12. Salt for Agriculture, As.8. Cocoa, Cocai its Salt, Rs.2. On the Importance of Lining, As.4.

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an the gardens, which form almost the only existing urce of supply, can possibly meet. About 88,500 seeds ve been supplied to planters this year, and many more uld have been supplied if they had been forthcoming. any planters have trees from five to eight years' old, so at in two or three years Para rubber should begin to gure in the list of Ceylon exports. The Forest Depart-ent has also planted a considerable area, and will plant ore, not as a commercial undertaking, but in order eventu-ly to supply seed to the public, who are now taking up the dustry in earnest; 11,500 seeds have thus been utilized is year by the Forest Department. The important fibre lant rhea has received considerable attention this year. he Director of the Royal Botanic Gardens has planted out considerable area with different varieties in some of his ardens. The plant is reported to grow very well, indeed, n Ceylon, and there is no doubt about the beauty and trength of its fibre, but the difficulty lies in its preparation. When this is overcome, as no doubt it will be overcome, he price of the raw material should rise and a very valuable rticle of export would be widely grown. The rise in the rice of vanilla has again attracted notice to this product, nd Mr. Willis has planted out during the year plots of oca, the Ceylon Bowstring hemp, the important West ndian food-plant 'tous les mois' and others. These plants re intended partly for experiment, partly to enable the Gardens to supply larger quantities of the plants to meet ny sudden demands."

If planters of South India could only be induced to take ufficient interest in the matter of new products, we have ot the slightest doubt that the Madras Government would neet them half way in the matter of extending the xperimental side of the so-called experimental gardens on he Nilgiris and elsewhere, while both the Mysore and Travancore Governments would be equally as willing. But planters must first show clearly that they do really vish for such assistance before there is the slightest chance f their obtaining it.

SORTING TEA.

MACHINERY has done much to spoil the sorting of tea. In all the ther processes machinery has improved tea, but in this, which is erhaps a very important factor to good prices, it has helped the anagers to get the work done quickly and cheaply, but it has done way with the old "niceties" of the work. In the old days, when ur tea was about three times the present price, we used to make Broken Orange Pekoe, two Orange Pekoes, two Pekoes, Broken Pekoes, Pekoe Souchong, Pekoe Fannings, Red Leaf Fannings, Pekoe Dust, and Dust; that is to say, eleven "sorts" of tea. And all hese teas used to get different prices, ranging from ten annas as he lowest to two rupees or so for the highest, thus allowing several nnas between the No. 1 and No. 2 of the Pekoes and Orange Pekoes. Nowadays, when perhaps we have only two annas difference between ur best and our worst tea, it may seem absurd to "sort" carefully, nd arguing on these lines, some managers have come down to three orts—Pekoe, Pekoe Souchong and Broken Tea. Each one has ome to his own conclusions, from experience or expediency, and we ave concluded that careless sorting is nearly as harmful as careless-ess in any of the other processes of tea-making. We argue in this ay: If you take five pounds of Orange Pekoe and throw it into 00 lbs. of Broken Tea, you have lost several annas. Suppose that he Orange Pekoe sells for 12 annas and the Broken Tea sells for ix annas, then you have lost $5 \times 6 = 30$ annas. Then by way of xperiment you throw 8 lbs. of Pekoe into 100 lbs. of Pekoe Souchong, he one being sold for 8 annas and the other for 7 annas, then you ave lost 8 annas. Again, if you go further than this and put 20 lbs. of Orange Pekoe into the Broken Tea you may raise the price of the Broken Tea by two pice (= 50 annas), but you lose $20 \times 6 = 120$ annas. It is impossible to be definite; but the conclusion is that you lose good tea by putting it into lower class tea without raising the price of the lower grade; and by leaving lower grade tea in the grade above it, you reduce the price of the higher grade.

No one makes tea so coarse as to have no Orange Pekoe in it; and, however small a percentage it may be, it would pay to separate it from the coarser teas. It is possible to carry this idea too far; for instance, by repeated cutting and sifting through a No. 14 sieve one can each time get tea of the *size* of Orange Pekoe, but all these mixed together would make a very bad Orange Pekoe: it would cease to be real Orange Pekoe after the first cutting, and after that it would be cut up Pekoe and cut up Pekoe Souchong, and these would also be very grey and unsightly. The perfection of sorting is as follows: The whole tea is put over a No. 14 sieve either untouched or gently disintegrated by hand; it must be a hand sieve made of cane and shaken until tea ceases to fall through freely; this makes Orange Pekoe No. 1. The tea above the No. 14 is then passed over a No. 12 sieve, and you get Pekoe No. 1. The tea is now cut up by any sort of machine or crushed by hand and again put over No. 14, which yields No. 2 Orange Pekoe; then over a No. 12, which gives No. 2 Pekoe. The residue is then sifted through a No. 10 sieve, and it is cut up time after time till all goes through. This when fanned makes Pekoe Souchong and Broken Tea. Broken Pekoe is got out of the Orange Pekoe by fanning, also out of the tea which drops

GORTON SHIRTING.

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through the sieves when firing, and nowadays a good deal of Orange Pekoe and Broken Pekoe is obtained by sifting the leaf before firing.

The crudest method of sorting is to cut up the tea with the machine breaker, and put it through a cylinder consisting of a No. 12, No. 10 and No. 8, then cut up the residue, or tailings, and send them through the cylinder again. By this means the work is done very speedily, but the result is that each grade consists of a mixture of each sort more or less cut up. This style of machine accounts for the small difference in price to be found in many marks, between the Broken Tea, Pekoe Souchongs, Pekoe and Orange Pekoe. The Orange Pekoe has Broken Tea in it, and the Broken Tea has Orange Pekoe in it, and so on, but (as stated before) this Orange Pekoe does not improve the Broken Tea, and the Broken Tea spoils the Orange Pekoe. Then, is it worth the trouble, or the expense? That *is* the question to be worked out by each Manager. Looking at the matter broadly, there is about 40 per cent. of Pekoe Souchong and Broken Tea. Of 200 million pounds of our British tea this 40 per cent. represents 8 million pounds. Of this 8 million 3 per cent. is good Orange Pekoe = 240,000lbs., and 5 per cent. is good Pekoe = 400,000 lbs., and if this amount of Orange Pekoe and Pekoe could be placed on the market in excess of our present offerings, it would have a marked effect on the reputation of our tea, and this could be done by more careful sorting without lowering the prices of the Pekoe Souchong and Broken Teas.—*Indian Planters' Gazette.*

DISTRICT ASSOCIATIONS.

SHEVAROYS.

PROCEEDINGS of the Monthly Committee Meeting of the Shevaroy Planters' Association held in the Victoria Rooms, Yercaud, on Monday, the 7th February 1898, at 1 P.M. PRESENT:—Rev. M. Anderson, Mrs. S. M. Hight, C. G. Lechler (*Chairman*), C. Rahm, J. C. Large, R. Gompertz (*Honorary Secretary*).

1. Notice calling the meeting was taken as read.
2. *Read* again Mr. Large's letter of 24th November 1897 *re* small change; read also Honorary Secretary's letter to Collector of 13th January, and Collector's reply of 21st idem, stating that there had been a dearth of small change lately, owing to the large demand for it caused by the famine. *Resolved* that as the pressure seems to have been purely temporary, the matter may be shelved for the present.
3. *Read* and *recorded* letter, dated 22nd January 1898, from Hony. Secretary, Nilgiri Association, in reply to our letter of the 14th idem, stating that the engagement of an Agricultural Chemist would be undertaken by private individuals in the Nilgiri District.
4. *Read* and *recorded* circular from Secretary, U.P.A.S.I., dated 13th July 1897, regarding the re-appointment of the Hon'ble H.P. Hodgson as Planting Member of the Legislative Council.
5. *Read* letter from Mr. Leeming resigning his appointment on the Planters' Committee, as well as his seat on the District and Taluk Boards, and his position as a Special Magistrate for the Town of Yercaud, as he is about to proceed to England. *Resolved* that the thanks of the Association be conveyed to Mr. Leeming for his services on the District and Taluk Boards for the last 18 months. *Resolved* further that the Honorary Secretary be requested to ask the Collector to nominate the Rev. M. Anderson as the representative of the Shevaroy Planters' Association on both the District and Taluk Boards, and to appoint Mr. C. G. Lechler as Honorary Magistrate in lieu of Mr. Leeming, resigned.

C. G. LECHLER, *Chairman.*
ROBERT GOMPERTZ, *Hony. Secretary.*

THINGS SLOWLY LEARNED.

THERE is a man in Scotland who used to write many readable and instructive things. He signed himself "A Country Parson," and a bright parson he is. One of his essays is entitled "Things Slowly Learned," a good line of thought for anybody.

Well, here is one of the things slowly learned—that disease doesn't jump on a man like a wild cat out of a tree, but develops from seeds and conditions, just as roses and weeds do. We who write and print the essays of which these lines are one have this a hundred times; but all the people don't seem to thoroughly grasped the idea yet.

For if Mr. Theodore Treasure alone had done so, he wouldn't suffered ten years from attacks of rheumatic fever. In Nove 1891, he says he had a fearful time with it. He tells us in a that he had dreadful pains all over his body, and was so so couldn't bear anything to touch him. Even the bedclothes him, like a feather against a sore eye. "I got little or no slee says, "tossing all the night long, and trying to get ease shift of position.

"I had a foul taste in the mouth, and spat up a great quant slimy phlegm. My appetite left me, and the little food I down gave me great pain at the chest and sides. For *five n* I was confined to my room, most of the time unable to lea bed, and what I suffered during that time I have no wor describe."

Any one who has ever been through that sort of thing can believe what Mr. Treasure says; for when every muscle and jo a man's body is throbbing with inflammation, it isn't any co collection of words that can set forth his feelings. It is agon torment in the supreme degree. Yet we ought to know bette to have it. But we don't—not yet.

"I was perfectly helpless," continues our friend, "and scarcely move. In fact, the people had to move me from on of the bed to the other. Month after month I was laid u suffering in this way. I had a doctor attending me, but he able to do much to relieve me.

"Finally, to cut the story short, I came to hear of Mother Se Curative Syrup. I read about it in a book that was left house. The book said this medicine was good for rheumatism so my wife got me a bottle from Mr. Ford, the grocer, at Oa After taking it for a week I felt great relief. Then I kept on t it and not long afterwards I found it had cured me; *it had com ly driven the rheumatism out of my system.* I am willing you s publish these facts, and yon can refer any inquirers to me. (Si Theodore Treasure (Waggon and Horses Inn), Doulting, Sh Mallett, November 3rd, 1893."

Now let's hark back a moment. To the thoughtful r Mr. Treasure's story may look a trifle confused and mixed. is, he describes the symptoms of rheumatism proper in conn with a lot of other symptoms which wouldn't seem at the first to have anything to do with rheumatism. But there's Mr. Treasure is right and the reader wrong. His account that he was a victim of chronic indigestion, dyspepsia, and t liver—and that covers the whole ground. Rheumatism (*and the slowly learned lesson*) is merely a nasty symptom of a dysp condition of the digestive organs. At the outset it means too eating and drinking. This results in the formation of a poiso acid which fills the body and produces the local outbreak rheumatism. Hence we cure it from within not from without. this *true* idea is also a *new* idea—do you see?

Try to get this lesson by heart. You can *prevent* rheumatis Seigel's Syrup; you can *cure* it by Seigel's Syrup. But it is comfortable to prevent it.

The Wynaad and the Planting Industry of Southern Indi FRANCIS FORD, Re. 1.

The Planting Directory of South India, Re. 1-8.

Tea Planting from Seed to Cup in Tamil, with English Tra tion. Re. 1.

Sketch History of the Planting History of Wynaad, by th ADOLPHUS ARTHUR WRIGHT. Re. 1-8.

Science and Coffee, by the late MR. WM. PRINGLE, M.S.C.I., R

Report of Observations of Injurious Insects and common Pests during the year 1883, with methods of Prevention and Re by Miss ELEANOR A. ORMEROD, F.R.Met.Soc., &c., Re. 1-8.

Apply to

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3, ESPLANADE ROW, MADRAS

MARKET REPORT.

COFFEE.

Messrs. R. J. Rouse & Co.'s Weekly Coffee Report (February 11, 1898) rs:—The moderate supplies offered in Public Sale this week met a good mand and in most cases previous values were fully maintained.

Nearly 4,000 bags East India were catalogued and attracted good mpetition, ordinary to medium qualities being disposed of at steady ces whilst fine colory grades realised extreme rates.

The Central American kinds brought forward consisted chiefly of mmon descriptions which sold slowly at slightly under valuations.

The Terme market has had a week tendency during the past few days ing to an estimate of ten million bags for the present Brazil crops; t at the close the market is steady at 6d decline from last week.

Messrs. Wm. Jas. and Hy. Thompson's Report of the Colonial Markets for e Week ending February 9th, 1898, says:—Bank rate 3%. Bombay change closes at 1s. $3\frac{7}{8}$d. Brazil Exchange $6\frac{25}{32}$d. Rupee paper %. $63\frac{3}{8}$. Silver $26\frac{1}{16}$d. per oz.

The better qualities of all kinds continue to be well competed for, and se rather dearer, whilst ordinary continues dull, and difficult of sale. he larger supply of East India Coffee sold well at full to dearer prices r good, and extreme rates for fine, the commoner kinds being rather wer. Brazil markets remain dull.

According to Messrs. G. Duuring & Zoon the stocks at the European rts on the 1st inst. shewed an increase of 8,050 tons, and the total sible Supply a decrease of 12,330 tons, being estimated at 178,200 tons d 357,670 tons respectively, against 170,150 tons and 370,000 tons on e 1st January.

Daily receipts averaged 12,400 bags in Rio, and 12,400 bags in Santos.

Futures close 9d to 1s lower, viz.:—Good average Santos in Havre, arch delivery, fcs. 36.25, in Hamburg pf. $29\frac{3}{4}$, and No. 7 low ordinary o in New York $5.75.

To-day's London official quotations are:—

	Feb.	March	May	July	Sept.	Dec., '98.
SANTOS ...	29/3	29/3	29/9	30/–	30/3	30/9

We quote:—

ylon, mid. to good mid.	95/@105/	Costa Rica, mid. to fine...	77/@108/
Do. small to low mid.	75/ „ 93/	Do. ord. to low middling.	53/ „ 76/
ast India, mid. to good mid ..	78/ „ 93/	Jamaica, good to fine ord.	47/ „ 58/
Do. small to low mid.	63/ „ 77/	Do. greenish to fine colory...	70/ „ 125/
uatemala, mid. to fine...	75/ „ 100/	African ...	28/ „ 30/
Do. good ord. to low mid...	55/ „ 73/	Columbian, ordinary ...	38/ „ 43/
lvador, good ord. foxy greenish...	45/ „ 49/	Do. good ord. to low mid...	45/ „ 70/
		Do. mid. to fine...	71/ „ 98/

Receipts in Brazil to 1st February compare as follows with previous ars:—

	1897-98. Bags.	1896-97. Bags.	1895-96. Bags.
RIO	3,101,000	2,518,000	1,823,000
SANTOS	4,937,000	3,992,000	2,603,000
	8,038,000	6,510,000	4,426,000

In sale:—

10 casks and tierces 5 barrels 1 bag Plantation Ceylon sold at 67/ 112/; 2,590 bags East India new crop, 678 bags Mysore 64/ to 108/6, 470 bags Coorg 55/ to 111/6, 114 bags Neilgherry 65/6 to 102/, 278 bags ynaad 52/ to 105/, 50 bags Shevaroy 66/6 to 105/; 1,500 bags Costa ica, part without reserve, 39/6 to 110/; 745 bags Guatemala chiefly sold 36/ to 94/6; 226 bags Salvador 27/ to 91/6; 569 bags Nicaragua 37/ 95/6; 174 bags Mexican 50/6 to 84/6; 69 bags Vera Paz bought in; 9 bags Haiti bought in; 2,995 bags Columbian chiefly sold at 28/6 105/6; 8 bags Liberian Java bought in; 83 bags Selangor Liberian ought in; 17 bags Travancore Liberian bought in; 119 bags African iberian bought in; 12 bags Liberian Johore 35/; 480 barrels Jamaica art sold at 40/ to 88/6; 74 bags South Sea Islands part sold at 24/; 7 bags Nyassaland bought in; 25 bags Peruvian 79/; 40 bags Bolivian ought in; 198 bags Ceara bought in. *On Quay Terms*:—76 bags washed antos bought in; 67 bags Santos bought in.

Landed last week ...734 *tons. Deliveries* ...532 *tons. Stock* ...10,405 *tons.*
Do. last year ...390 „ „ ...491 „ „ ... 7,938 „

EUROPEAN IMPORTS AND STOCKS.

	IMPORTS. In January.		DELIVERIES. In January.		STOCK. 1st February.	
	1898. tons.	1897. tons.	1898. tons.	1897. tons.	1898. tons.	1897. tons.
	48,620	37,260	40,240	29,210	177,050	106,080
Afloat from the East to Europe ..			...	...	2,700	3,700
„ „ Rio to Europe ...			...	...	7,850	6,850
„ „ Santos „ ...			...	...	23,910	17,540
Stock and Afloat ...				...	211,510	134,170
„ „ on 1st Jan. ...					210,060	129,830

THE UNITED STATES.

	1st February. 1898.	1897.
Stock	57,710 tons	26,940 tons.
Afloat	20,060 „	22,770 „
Visible Supply	77,770 tons	49,710 tons.
Value No. 7	6¼ cents.	9¾ cents.

	January. 1898.	1897.
Imports	36,650 tons	24,650 tons.
Deliveries	32,940 „	27,590 „

BRAZIL.

	Stocks 31st January. 1898.	1897.
Rio	300,000* bags	305,000 bags
Santos	843,000 „	555,000 „
Total ...	67,230 tons	50,590 tons

Receipts 1st July, 1897, to 31st January, 1898.

Rio *	2,991,000 bags
Santos	4,815,000 „

* Revised Stock.

Exported 1st July to 31st January.

	1897-98.	1896-97.
Rio to Europe	970,000 bags	605,000 bags
„ the States, &c.	1,910,000 „	1,445,000 „
Total from Rio ...	2,880,000 bags	2,050,000 bags
Santos to Europe	3,290,000 bags	2,500,000 bags
„ the States	845,000 „	920,000 „
Total from Santos ...	4,135,000 bags	3,420,000 bags

WORLD'S VISIBLE SUPPLY.

	31st January. 1898.	1897.
Europe	211,510 tons	134,170 tons
United States ...	77,770 „	49,710 „
Brazil	67,230 „	50,590 „
Total ...	356,510 tons	234,470 tons

December 31st (1897), 368,640 tons (1896), 238,360 tons

JAVA.

THE GOVERNMENT CROP.

1898.	1897.	1897.
130,000 bags*	362,000 bags	293,000 bags

* Latest Estimate.

SUMMARY COMPARED WITH LAST MONTH.

European Stocks	8,380 tons	Increase
„ Visible	1,450 „	„
United States Stocks ...	3,770 „	„
„ Visible ...	7,990 „	Reduction
Brazil Stocks	5,590 „	„
World's Visible	12,130 „	„

TEA.

Messrs. Gow, Wilson and Stanton's Indian, Ceylon, and Java Tea Report, dated February 11th, 1898, says :—

QUANTITY BROUGHT TO AUCTION IN LONDON

FROM 1ST JUNE TO DATE.

	Indian.	Ceylon.	Java.
1897-1898	1,196,348 packages.	836,857 packages.	30,489 packages.
1896-1897	1,226,056 ,,	783,921 ,,	28,682 ,,

34,688 *pkgs.* INDIAN
28,182 ,, CEYLON
1,913 ,, JAVA
} Total 64,783 packages were offered in p auction this week.

The total quantity of British Grown Tea taken by the United S and Canada during each of the last six years is shown below, viz :—

	1897.	1896.	1895.	1894	1893.	18
Lbs.	11,361,840	9,623,283	7,816,467	4,723,370	3,981,837	3,07

The steady annual increase amply justifies the expense incurred b Indian and Ceylon Tea Industries. It is most important that the su afforded this new industry should be continued, especially now that Teas are being heavily advertised in North America.

INDIAN AND CEYLON TEA TAKEN BY NORTH AMERICA DURING EACH OF THE LAST SIX YEARS.

INDIAN TEA.

	1897.	1896.	1895.	1894.	1893.	18
Re-exports from U. K.	1,746,963	1,808,216	1,731,950	1,420,205	1,532,573	1,38
Transhipments *viâ* U. K.	3,309,114	3,123,224	2,299,781	896,025	507,674	14
Direct Exports *viâ* China	607,167	Abt. 327,333	40,000	112,000	71,000	5
Total lbs. ...	5,663,244	5,258,773	4,071,731	2,428,230	2,111,247	1,58

CEYLON TEA.

	1897.	1896.	1895.	1894.	1893.	18
Re-exports from U. K.	3,153,284	2,828,104	2,542,573	1,769,204	1,449,720	1,32
Transhipments *viâ* U. K.	1,855,150	1,165,926	880,732	370,414	232,771	6
Direct Exports *viâ* China	690,162	370,480	321,431	155,522	188,099	10
Total lbs. ...	5,698,596	4,364,510	3,744,736	2,295,140	1,870,590	1,48

Indian. With another week of small offerings the market remained without alteration, competition ruling strong. Averages :—" Budla Beta," 1/4¾ ; " Assam Frontier Co. H.," 1/2½.

Week's av. of Tea sold on Garden Account, 1898, 27,943 pkgs., av. 8·62d. 1897, 28,059 pkgs., av. 9¾d.

	1898. Pkgs.	1898. Price.	1897. Pkgs.	1897. Price.	1st June to date 1897-8. Pkgs.	1st June to date 1897-8. Price.	1st June to date 1896-7. Pkgs.	1st June to date 1896-7. Price.
Assam ...	14,893	9·70	15,305	10¾	427,282	9·99	425,593	10·18
Cachar & Sylhet...	7,760	6·72	7,191	7½	231,491	7	215,833	7·41
Chittagong ...	228	7·50	165	8½	5,062	7·21	3,021	7·60
Chota Nagpore ...	54	5·25	—	—	1,360	5·01	1,466	4·95
Darjeeling ...	1,487	10·45	2,012	1/2¼	60,161	11·10	55,677	1/·40
Dooars ...	3,041	7·05	2,374	7½	105,499	7·55	108,865	7·50
Kangra, &c. ...	—	—	233	6¾	7,130	7·21	5,323	7·10
Neilgherry ...	—	—	—	—	5,210	7·05	3,163	6·84
Terai ...	260	7·50	268	8½	19,007	7·20	11,928	7·18
Travancore ...	220	6·17	511	8	24,790	6·45	22,617	6·95

Total sold on Garden Account 1st June to date 1898, 886,500 pkgs., av. 8·85d. 1897, 853,486 pkgs., av. 9·09d.

Comparative prices of Indian Tea in London :—

		1898.	1897.	1896.	1895
DUST.	(Fair ordinary, dark liquor) ...	3¾d	4¼d	4⅝d	5d
FANNINGS.	(Red to brown, strong rough liquor) ...	4¼d	4½d	4d	6d
BROKEN TEA.	(Brownish to blackish, strong liquor) ...	6d	6¼d	6¼d	7½d
PEK. SOUG.	(Blackish greyish, useful liquor).	6¼d	6¾d	6¾d	8¾d
PEKOE.	(Greyish to blackish, some tip, useful liquor) ...	7¼d	8¼d	7¾d	
PEK. SOUG.	(Blackish greyish, inferior liquor).	5d	5d	5¼d	
PEKOE.	(Blackish greyish, some tip, inferior liquor) ...	5½d	5¾d	5¾d	

Ceylon. A second week of heavy auctions proved too much fo market and prices gave way all round to the extent of fully ½d. pe medium brokens being frequently difficult to dispose of except at a further reduction. Average for week 7·40d., against 8d. same p last year.

Ceylon Tea sold on Garden Account 1st January to date 141,060 pkgs., av. 8d. 1897, 126,290 pkgs., av. 8d.

Comparative prices of Ceylon Tea in London :—

		1898.	1897.	1896.
PEKOE SOUG.	(Ordinary leaf ; fair liquor) ...	6¼d	6d	6½d
PEKOE	(Ordinary leaf, little twist ; fair liquor) ...	7d	7¼d	7¾d
PEKOE SOUG.	(Rather bold leaf ; indifferent liquor) ...	4¾d	5d	5¼d
PEKOE	(Somewhat bold leaf ; indifferent liquor) ...	5½d	5¾d	5¾d

Java. The sales passed at about late rates for common and me grades, the better descriptions being slightly cheaper. Good inv were offered from " Perbawattee " and " Goalpara."

Bank Rate 3 per cent. Exchange on London three months sig Calcutta 1/4⅛. Colombo 1/4⅛.

PUBLIC SALE OF SOUTH INDIAN TEA.

(AVERAGE FOR ALL INDIA 8·62*d.*) *February 11th.*

GARDEN.	Total. Quantity	Total. Average. Price.	Broken Org. Pek. or Flowery Pekoe. Quantity	Broken Org. Pek. or Flowery Pekoe. Price.	Pekoe and Unassorted. Quantity	Pekoe and Unassorted. Price.	Broken Pekoe. Quantity	Broken Pekoe. Price.	Pekoe Souchong. Quantity	Pekoe Souchong. Price.	Broken and Souchong. Quantity	Broken and Souchong. Price.	Fannings, D and Vario Quantity	Pr
Travancore ...	**220**	**6·17**												
Goatfell ...	70	5½	...	...	28	5¼	22	6½	20	4⅝	...	...	...	
Penshurst ...	150	6½	67	6⅝7¾	38	6	...	...	29	5½	8	5½	8	

† = Prices bid.

PLANTING OPINION.

A WEEKLY JOURNAL

WRITTEN BY PLANTERS FOR PLANTERS.

VOL. III.] COONOOR, SATURDAY, MARCH 12, 1898. [No. 10.

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DOMESTIC OCCURRENCE.—The fee for inserting a domestic occurrence will be *One Rupee* for each insertion, payable in advance.

N.B.—Remittances should be sent to the Manager, "Planting Opinion," Esplanade Row, Madras.

IMPORTANT NOTICE.

The Business Offices of this paper having now been removed to Madras, all remittances should be made payable to the Manager of *Planting Opinion*, 3, Esplanade Row, Madras, who will also attend to all advertisements, &c. Letters to the Editor should be addressed to Coonoor, as usual.

SEASON REPORTS.

NOTICE.

TO OUR SEASON REPORTERS.

Please post your next reports to reach Madras on Friday, the 18th March, 1898.

Season Reports should be sent to the Printers, Messrs. ADDISON & Co., direct, and not to *Planting Opinion* Office.

S. E. Wynaad.

DEVALA, *9th March.—Weather.*—Since the 24th February it is very hot during the day and cool at nights. Since the 5th inst., strong wind is blowing both by day and night. The sky is very clear and there is no sign of any rain. *Crop.*—Gleaning is finished and pepper is being picked. *Grain.*—Salt 8, rice 8, cholum 18 and ragi 16 seers per rupee. *Health.*—Fair. *Labour.*—Sufficient.

Nellampathy.

9th March.—Weather.—Strong east winds for a week now. The shower I last reported brought out a blossom of about three-fourths everywhere, and rain now would suit every one, but there is no appearance of more at present. *Crops.*—Rice, &c., still very dear. *Plant-diseases.*—A little leaf-disease still to be seen on clearings. *General Health.*—Remarkably good for the time of year. *Labour.*—Everywhere paid off and only hot weather coolies—mostly Mulsers—here now. *Interesting items.*—District getting very empty, as few stay here for the hot weather who can get away elsewhere.

Coorg.

POLLI BETTA, *8th March.—Weather.*—Cloudy a day or two ago. Clear before and since. High east wind yesterday, but little dew. *Crops.*—Spike healthy and plenty of it. Bees still on *Sagade* (Schleichera trijuga) flowers, so perhaps it is well that the rain is delayed; but we would like to see it by the 15th or 20th, or at any rate by the close of the month. *General Health.*—Some improvement; but there seem to be always cases of fever and bowel-complaints. *Interesting items.*—Rifle Meeting brought to successful close on 5th; Colonel Robertson's cup fired for yesterday morning; Inspection of B. and D. Companies, S. Coorg, on 10th instant.

DENITRIFICATION OF MANURE—THE OTHER SIDE.

THE results of the recent German experiments on the denitrification of cattle manure, which we summarised some time ago, have met with considerable criticism in the English Press. The chief arguments advanced against the theories drawn from the German investigations is that the amount of cattle manure used in the experiments were immeasurably greater than that employed in ordinary agriculture. Consequently, it is impossible to reason accurately from results obtained under artificial conditions to those likely to be obtained under natural and widely-different conditions.

In the December number of the *Journal of the Royal Agricultural Society of England*, Professor Warrington has an interesting and very detailed criticism on the remarkable experiments described in the preceding number of the same journal. The German conclusions, it should be remembered, were as follows:—1. The solid excrement of the horse or cow is practically valueless as a manure. 2. When applied in a fresh state to land, it destroys the nitrates present, and even those added to it as nitrate of soda, resulting in a crop smaller than that of unmanured land. 3. It has a like deleterious influence when applied in conjunction with sulphate of ammonia, urine or green manures. 4. Straw is even worse than dung in the above respects. 5. The denitrifying action of both is due to the presence in these substances of a special denitrifying organism. 6. When old and humified, the harmful action of dung is much lessened. Further, that the longer the dung has been applied before the addition of the nitrates, the lesser is its harmful power. 7. When preserved by admixture of superphosphate or kainit, its denitrifying power is little altered by age.

We cannot attempt to follow Professor Warrington in his exhaustive criticism, but shall summarise his arguments as clearly as we can. He begins by reviewing the process of denitrification, which has been carefully investigated during the past thirty years. The reduction in nitrates is of several distinct kinds,—from nitrate to nitrite; from nitrate to nitric oxide gas; to nitrous oxide gas; or finally to nitrogen gas. The first form does not necessarily involve any loss of nitrogen, but all the others do, as the product escapes in the form of gas. The bacteria that cause these different forms of bacteria are of various species. The manner in which they work is by bringing about the combustion of organic matter by the oxygen of the nitrate. Circumstances being favourable, the amount of nitrate reduced is determined by the quantity of combustible organic matter present. This combustion can take place without air in the same manner as gunpowder can burn under water. It must be remembered that nitrate is a compound of which oxygen is an important constituent. If this oxygen is used in combustion, the nitrogen of the nitrate is set free or denitrified. In the presence of air, the oxygen taken from the nitrate in the combustion of the organic matter is replaced by the oxygen of the air, so that either the rate of oxidation is greatly increased, or the reduction of the nitrate is diminished. The denitrifying bacteria are present everywhere, and are not confined to stable dung. Air and consequently soil dust contains them in myriads. All they need to effect their work is a suitable mixture of nitrate organic matter under certain favourable conditions.

The greater denitrifying action of horse dung comp with cattle dung is explained by the greater proportio hay consumed. A given weight of hay presents a far gre air surface than a similar weight of turnips, and consequ ly has present on its surface a far larger number of bact These are not destroyed in the course of digestion, and present in the dung in a larger proportion than ever.

By means of experiments which we shall not fol Professor Warrington states that the conditions w bring about a loss of nitrogen by denitrification ar follows. There are needed: 1. The specific organ 2. The presence of a nitrate and suitable organic ma 3. Such a condition as to aëration that the supply of at pheric oxygen shall not be in excess relatively to the su of organic matter. 4. The usual essential conditio bacterial growth, as plant food, and a suitable tempera Of these conditions, the supply of organic matter is b the most important in determining the extent to w denitrification will take place. Experiments have pr this up to the hilt. German experiments on this prin were entirely overlooked, the investigators taking thought of the amount of organic matter, merely confi themselves to the exact amount of nitrogen supplied. nitrogen given in the above experiments were in the of many different substances, each varying greatly in amount of combined organic matter. Thus the dry we of blood containing 2 grains of nitrogen is only 12 gr while that of farmyard manure varies from 65 to that of horse dung is 103; while rye straw is 409. was found that crops manured with blood recovered a l amount of nitrogen,—fifty per cent., while farmyard na only resulted in a recovery of 6 to 8, and horse dung w

The condition of the organic matter is of great imp ance. It must be *fermentable* organic matter to en denitrification to take place. Black humified dung scarcely any effect on nitrates, while if fermentati lessened by means of superphosphate or kainite, the required for the cessation of fermentation is far prolonged.

The proportions of manure to soil in the German ex ments were far greater than in field practice. Conseque though of undoubted interest, they rather illustrate properties of manure under certain conditions, than farmers to expect like results in the field. "Organic m in the soil acts," says Professor Warrington, "in an inju manner only when it is of such kind and quantity th changes the character of the soil from an oxidising deoxidising medium." The usual practice in farming apply some ten tons of farmyard manure per acre, w will amount to 1 per cent. of the soil which will be m with it in practice. Sometimes 20 tons will be gi but 2 per cent. will very rarely be exceeded. Nov Wagner's experiments, the percentage of dung to soil w representing the enormous quantity of 70 tons per His ordinary dressing of dung was 4 per cent., double highest quantity ever used in farming and four times usual dressing. Maercker even exceeds this, for his portion of dung was 10 per cent., equivalent to 100 per acre, and in some of his experiments he exceeded huge amount by three times the last quantity. In

rther experiments, the quantities used were far smaller d the results greatly better. In fact, in field practice, Maercker admits, the usual recovery of nitrogen from myard manure is 25% against the pitiable 6 to 8% tained in his experiments.

In our next issue we purpose to notice the Rothamsted ults bearing on the question.

NOTES.

w mistletoe grows.

We notice a writer in a tea exchange puzzling himself over the nner in which mistletoe effects a lodging in tea. It is very simple matter. Birds are very fond of the sticky it of the parasite, and after digesting the pulp, pass out e seed, which alights in a favourable or unfavourable posin as it happens. When left on a twig or branch, the ckiness of the seed makes it adhere, until sufficient isture causes it to germinate. The tap root, so to speak, netrates the bark and feeds on the juices of the tree. ence the occurrence of mistletoe on all sorts of trees and all sorts of localities. It is said that the best way to adicate the pest is to *break*, not cut, off the affected anch.

namite in clearing and.

We see it suggested in a contemporary that more extended use of dynamite might be made noways in clearing forest land for plantations. The expense clearing out by coolie labour the enormous stumps that sfigure new clearings is certainly prohibitive, while the vantages of blasting them out with dynamite are not few. is alleged that the regular use of the explosive on a earing would entirely obviate the heavy cost of a deep gging, as the ground is loosened to a considerable depth und the site of each explosion. As augers would do the illing of the requisite holes, or ordinary coolies could be trusted with the initial part of the work, the cost per shot" would probably not exceed six annas on an average, d might conceivably be done for less.

e Nilgiri Agri-Horticultural Society.

The next exhibition of this Society is to be held at Ootacamund on the 23rd April. There are 36 small prizes for flowers, aggregating s.124, while the same amount is also offered for vegetables d fruit. Some Rs.27 are to be awarded for farm and field oduce—a very sensible addition to the programme. If might offer a suggestion, we think that medals might be warded to the exhibitors of the best collection of dairy oduce, of Nilgiri jams, also perhaps for tea and coffee t up in marketable form. In addition to the above, the overnment of Madras has offered prizes of Rs.30, Rs.20 d Rs.15 for the three best samples of barley grown on the lgiris, each exhibit not to be less than a bushel. Should barley have been grown by April, the prize will be ferred to the September show.

e Currency question n Ceylon.

The Ceylon planters are joining heartily in the movement started by the U. P. A. S. I. to induce the dian Government to pause in its ruinous currency policy. overnment has admitted that it would be highly dangerous to fix exchange at a higher rate than 1*s.* 4*d.* per rupee, on account of the great loss to the industrial development of the country. Yet, in a most illogical manner, it refuses to consider the loss accruing from an exchange forced up to the limit it has imposed. In commenting on the position, the *Ceylon Observer* brings to notice that as the Indian and Ceylon tea exports only form one-ninth of the whole export trade, the total losses suffered at present by producers is something enormous. Of the estimated total loss of 18 million sterling in 1897, native producers are thus reckoned to have lost *sixteen million pounds sterling!*

Nilgiri tea.

Mr. Geo. Christison, the well-known Darjeeling planter, whom we unfortunately missed during his short stay in Coonoor, gives his opinion thusly on Nilgiri tea: "I like your district in many ways. Your soil generally is very good, and your tea *looks* healthy and well. Of course without being with you all the year round, I cannot form any very reliable opinion. . . . As you must know, your tea has not been in good favour in the London market. This may, I think, be remedied in some measure." We quite agree with Mr. Christison. The capabilities of the Nilgiris are shown in the success of perhaps only two or three gardens at most. The soil is good, the climate very good, but the jat is—mostly—vile. Until a fuller appreciation is shown of the virtues of a better jat of tea than is now commonly grown on the Nilgiris, and until the present style of three acres and a factory are given up, the prospects of the Blue Mountains, as a modern tea-district, will remain ultramarine.

The Russian market.

In 1896 the consumption of tea in Russia was 92 million pounds, of which 52 millions were leaf teas and 40 million brick or slab tea. The population by the census of January, 1897, was over 126½ millions. About 64 per cent. of the whole is imported by land from China, the remainder coming by sea. The import duties are in favour of the land trade, being only 1*s.* 2*d.* per English pound against 1*s.* 10½*d.* if crossing on the European frontier. This is on leaf teas. Most of the Ceylon and Indian tea enters Russia through the Russo-Prussian frontier. Owing to the Russian system of allowing no tea to be sold in retail except when packed under Government supervision, an import trade in packet teas is impossible. The crushing import tax is of course the great barrier against extended consumption of British grown teas. On an average the duty exceeds 300 per cent., *ad valorem*, much of the Chinese tea being worth under 6*d.* per lb. The trade is generally hostile, but despite its prejudices is forced to use Ceylon tea to give strength and colour to its blends.

Spices.

There is, in many instances, a distinctly firmer tone in this market, and at Wednesday's (9th February) auctions Cochin ginger met with a more active demand, particularly fair washed rough sorts, which sold at about 2*s.* to 3*s.* advance on recent rates, and, with a continued good enquiry, a further advance has since been established. The large stock here of Cochin ginger has, no doubt, for some little time past, tended to depress values on the spot, but now it has become apparent that shippers are not disposed to accept correspondingly low prices for the new crop ginger to arrive, a reaction in

values for landed parcels has quickly set in, resulting in an advance of about 5*s.* from the lowest point. Japan ginger is also about 2*s.* to 3*s.* dearer. Jamaica is nominally unchanged, but prices are steady. The market for white pepper continues firm, and at auction 6¾*d.* per lb. was realised for Penang white, showing a further rise, notwithstanding the heavier arrivals of 273 tons as against 78 tons delivered during the past week. Business in black pepper is less active, but quotations remain fairly steady.

Coffee in America. The deliveries of coffee in the United States in 1897 were 5,408,824 bags against 4,555,130 bags in 1896, an increase of 853,694 bags, or 18·75 per cent. This is a remarkable gain, and must be credited, according to the *Grocer*, to two factors, the most important of which is the low cost of the article, and the next the vigorous war carried on by the great roasting establishment, resulting in a heavy increase in the sale of roasted coffee in packages, and which sells at wholesale to-day at 4¼*d.* and retails at 5*d.* to 6*d.* per pound. In the raw state coffee is selling from 2½*d.* up to 1*s.* 4*d.* per pound. The low price has stimulated the starting of small roasting establishments, and as the blending of coffee is very profitable, dealers are pushing the coffee business as never before. As a rule retailers buy coffee roasted, and grind it as wanted. The identity of the bean is almost lost in roasting, and this, coupled with the wide range in prices and varieties, gives the wholesale dealer a rare opportunity for a profitable trade. At retail the finest Padang Interior roasted coffee retails from 1*s.* 5*d.* up to 1*s.* 6*d.* per pound. A very good coffee is retailed, in the bean, at 4*s.* for four pounds.

Adhatoda vasica. After a considerable amount of investigation, it has been decided that after all the insecticidal powers of this plant are not very great. Experiments, while proving that this plant is distinctly poisonous to certain forms of insect life, yet were not successful enough to justify its extended use on tea-gardens. It may be interesting to note here the different qualities possessed by vegetable and mineral poisons. Infusions of tobacco, though of late generally abandoned by horticulturists, have certain distinct advantages over the use of such mineral poisons as the arsenical compounds known as Paris green and London purple. The latter are poisonous to the very end, as long as they remain in a concentrated form, and, in fact, if left long on a plant may seriously injure it. The compounds of tobacco, however, decompose when exposed to the air, and their poisonous properties pass off after killing off the blight. For tea, it is therefore of the highest importance to only use vegetable preparations in spraying the bushes, unless, indeed, such spraying is effected soon after pruning. *Adhatoda vasica*, being a leguminous plant, contains an abundance of nitrogen and mineral salts, and is highly valued as a manure by native cultivators.

Tea Market. *Indians.*—With a continuance of moderate supplies and a steady demand, (*P.M. Review* of 12th ult.,) prices show no material change. Some of the better class descriptions, especially those with a not too pronounced autumn flavour, have sold at full rates, which are likely to be maintained, as fine teas will probably not be over-plentiful later on. The me Assams and Dooars growths (the latter in several showing improved quality) have also attracted attention have fetched fully late prices, and as the former kinds probably not be in excess of requirements, a firmer ma for them is not unlikely. On the other hand, Sylhets Cachar teas, with few exceptions, are of poor quality, are consequently comparatively neglected, even at moderate prices now ruling. The accumulated stoc doubt, comprises a considerable proportion of these k and the demand is not likely to show any material provement until the supply of the more desirable so reduced. Darjeelings are still deficient in the flavour lo for in this growth, consequently the bidding has been s while Travancores, owing to their better quality, have with a brisker enquiry. Of the 34,540 packages catalo for public sale, 31,230 were sold, the demand moderately active for all good useful descriptions.

Ceylon tea in 1897. Messrs. Wilson, Smithett & C their Ceylon Tea Memoranda 1897, do not strike a very high note. The high excha accompanied by a further decline in price to the exte almost a half-penny per lb., does not indeed allow of gratulation. On the other hand, the statistical pos could not be sounder, for while the increase of imports only two millions, deliveries showed an expansion of s millions. Over-production, therefore, is not yet at The increased deliveries, it must be added, were due very large expansion of re-shipments to the conti from where considerable orders are placed on sam received prior to the public London auctions. It is Russia chiefly that these orders come. Nothing glowing can be said about re-exports to other parts o world, though of course this means that the day of d shipments is waxing apace. The danger of shipping in vessels with strong-smelling cargo, such as eucal oil, were prominently brought forward during the several invoices being seriously affected.

Although as a rule three important grades ma regarded as sufficient, and indeed in the case of shipments should not exceed that number, in orde ensure due consideration from buyers, yet the incre number of large invoices may well be further sub-div and include an Orange Pekoe (Unbroken), so that proportion of Broken Pekoe may be more limited increasing demand from the Continent is confine "whole leaf" teas, and Orange Pekoes—wiry and from dust—are well calculated to supply the want foreign markets.

Coffee. At last there has come a che the continued increase in the s says the *P.M. Review* of 12th ult., and during Jan the world's visible supply decreased some 12,000 tons is partly due to the delay in forwarding caused by floo many of the Central American countries. From Costa the new crop is arriving very slowly, and from the l reports it will probably be the middle of March before large quantity arrives. In the meantime, more atte is able to be paid to East India, of which there has a rather better supply. Prices have been well maintai while few lots of really fine have fetched rates higher

iose that were ruling last year. Further shipments of Mysore iow a very irregular outturn: some estates which usually ind very fine quality prove this year to be very inferior, hile others are quite equal to the average. Of other kinds iere has only been a small supply offered, and prices are nchanged, excepting for Santos, which has sold rather wer. In the terminal market prices gave way in the middle f the week, on an increased estimate of the present crop, ut since then there has been some improvement.

London Coffee Returns.

—	Home Consumption.		Export.		Stock.	
	1898	1897	1898	1897	1898	1897
For the week ended Feb. 5, 1898.	Tons. 266	Tons. 258	Tons. 266	Tons. 233	Tons. 10,425	Tons. 7,938
For the 5 weeks ended Feb. 5, 1898.	1,366	1,337	1,565	1,173	—	—

The bulking of tea. We have by no means heard the last of this question, which, partly by he action of Mr. Lipton, has now reached an acute stage. Mr. J. Buckinghlam, C.I.E., Chairman of the Assam Branch f the Indian Tea Association, has recently addressed n important letter to the parent branch. Some years go estate bulking was generally practised and in a very efficient manner, but was stopped owing to brokers and others leclaring that London bulking was essential in any case. t is doubtful whether 5 per cent. of Assam gardens now do state bulking, for the advantages and disadvantages eem fairly evenly balanced. In bulking on the estate, one aves time in London in bringing tea to market; on the ther hand a slight loss of time is experienced on the estate. A saving of warehouse charges is effected to the extent of bout 1*s.* per chest, or £73,000 per annum; against this nust be placed the expense of making air-tight bins and he longer fire-risk through storage on the estate. Again he practice effects a prevention of risk of mechanical damage o tea through bulking in England; but *per contra* it ntails a risk of tea deteriorating in bulk even if in so-called ir-tight bins. A further advantage claimed for estate bulking is the lessened liability to loss in weight, test packages nly being weighed; there is no counterbalancing disdvantage on this score. Yet another *pro* is the superior ondition in which the packages reach the buyer; estimating at a farthing per pound only, this would be equivalent o £150,000. Lastly, the alleged absolute certainty of a ample from one chest being a genuine sample of the whole reak, and thus obviating the possibility of the trade aving parcels of tea thrown on their hands on account of rregularity. This alleged certainty is, however, very eriously discounted by the possibility of teas being damaged by water or any other causes in transit, which night not be discovered until the teas were sold. This ast point, indeed, is the very one on which Mr. Lipton lays uch stress. Weighing the *pros* and *cons* of both systems carefully, the General Committee of the Indian Tea Association has strongly recommended that estate bulking should again come in force, and it behoves, therefore, the whole tea-planting community to loyally support their policy. It is one of the many little points in which the interests of producers clash with those of the brokers and middlemen, and it is to be sincerely hoped that victory will lie with the planters.

Roots as soil-tillers. In the December number of the *Journal of the R. A. S. E.* appeared an interesting paper by Mr. Robert Elliot, author of "Gold, Sport and Coffee in Mysore," on the value of plant roots as tillers of the soil. The direct interest possessed of the article for planters is not great, but there are one or two points worthy of attention. Mr. Elliot is nothing if not large-minded, and he claims to have solved the question that has been occupying the anxious thoughts of statesmen and scientists for the last three decades: how to enable the British farmer to successfully compete with his foreign rivals. He starts *ab ovo*, from the original fertility of virgin forest or virgin turf land. Such a soil is in perfect condition for the cultivation of crops, and its fertility depends on the length of time such mechanical condition is kept unimpaired. Plant food is of course indispensable, but unless facilities are given to the roots of plants to partake of that food, it is useless to heap the board with nutriment. He turns for confirmation of his views to coffee, where it is well known that the growth of the young plant is in direct ratio to the forest mould that covers the soil. "For, on comparing an analysis of the original soil with an analysis of soil from which sixteen crops of coffee had been taken without manure, we found the soil was little the worse, and only showed a slight deficiency in lime, the leaves which annually fall from the large trees which shade the coffee having evidently supplied the exhaustion caused by the crops. The examination was carefully conducted by the late Professor Anderson, of Glasgow, and a brother planter who called on him to hear the result very naturally asked how it was that, if the soil was only so slightly impaired, we could hardly grow young coffee in it, or but very unsuccessfully. Simply, replied the Professor, because the new soil is in a beautifully disintegrated, friable condition, while the old soil has lost that condition." With this as the groundwork for his argument, he proceeds to describe the results of repeated experiments in England in laying land down to grass and ploughing it up and cropping it at intervals. The pecuniary results of the system he claims to have been most gratifying. It seems a little strange that a "practical coffee-planter" should teach his scientific brother agriculturists in England the way how farming should be pursued. But practice has more than once shown science the way.

Fruit culture. The following article from the pages of the *Tropical Agriculturist* should be of interest to coffee-planters, especially to the exponents of the intensive system of culture on the Mysore plains:—

"On no account should the common custom be followed of bottoming every tree-planting hole with a shovelful of manure under the idea that the tree is getting thereby a special mark of attention. Independent of the fact that 'manure' too often means raw stable dung, fermenting fast and reeking with ammonia, there is this to be considered, that natural manurial agents can only be satisfactorily taken by the fine hair-roots when presented in a very dilute state

by the help of water. Moreover, the fermentation and decay of this organic matter gives off a large quantity of carbonic acid gas, filling up the interstices of the soil and driving upwards the atmospheric air which ought to fill them. Were it not that gases have a wonderful power of diffusion and dilute themselves away with great rapidity, the custom of bottoming tree-pits with fermenting dung would have been dropped long ago as a sure means of asphixiating the roots. If the soil is of average fertility and well prepared, or if being somewhat poorer, a little old well-rotted manure has been added during the trenching, there is not the least need for the manuring of the hole referred to.

"As a general statement it may be said that orchard manuring is best done by top dressing, and turning the material into the upper tilth to be carried slowly by solution down to the level of the roots. It is a good plan to have a plan of the orchard in which the rows are plotted and the individual trees have their names entered. This will enable one to identify each tree—as labels soon become illegible and no reliance can be placed upon a vague remembrance—distinguish the qualities of one from the other, and enable him to gain a general knowledge of fruit trees. If supports are necessary for transplants, the best plan is to put in two stakes 14 to 15 inches distant from the tree and tie it to a cross-bar fastened horizontally from one to the other: a single stake driven in among the roots is objectionable.

"When the trees have been firmly established, the condition of openness and aëration with free passages of moisture through it and away must be maintained.

"The whole of the ground between and among the trees has to be kept in an open worked condition, not only because it would otherwise harbour weeds which would draw sustenance from the soil which belongs to the trees, but for another and important reason. An open pulverulent tilth at the surface is the best preventive of evaporation from the underlayers in which the roots lie and perform their functions. As soon as a hard continuous surface-crust is formed, the uninterrupted capillary attraction exerted by the interstices of the soil-particles draws the moisture of the lower strata up to the heated crust, where it evaporates as fast as it is transmitted. It is not long, therefore, before the feeding-bed of the roots under such surface-crust is far too dry for their proper functions, the growth of the root hairs ceases, and the tree begins to show signs of flagging. Matters cannot be set right, as some ignorantly suppose, by flooding the root-bed with water. As the water gets slowly away by percolation, most of it is evaporated from the surface and the crust reproduced, with the inevitable result of the same capillary rising of the very water just administered and its dissipation into the air. There is, therefore, a pernicious alternation of a fast and feast forced upon the roots. The true remedy consists in interposing a loose powdery or fibrous stratum several inches thick between the layer of soil in which the roots live and perform their functions and the external air ever greedy of moisture. And there are two ways of doing this."

Some notes on rubber. Australia, as we are lately aware, is doing its best to encourage the cultivation of such varieties of rubber as are best suited to its climatic conditions. In an article in the *Sydney Mail*, a writer states that a successful introduction of suitable varieties might easily mean an additional million pounds sterling to New South Wales exports. There are varieties of rubber, which will only thrive in conc most unfavourable to human health, *i.e.*, great heat and moisture. As it is chiefly in those varieties that the r trade consisted until quite lately, it is not to be won at that up to the present experimental cultivation of r has been a failure, owing to the attempt to plant sw loving plants in ordinary soil. The wants of South I planters are identical with those of New South Wales the introduction of a variety that will thrive and pay existing plantation districts. There are a few Australian that yield rubber, but not in very encouraging quan The Castilloa has been tried in Ceylon, though the waiting inevitable before cropping has not been mu its favour. Experimental cultivation with this variet proved that shade is indispensable to the young p In planting up jungle with rubber, it is held to be lutely necessary to leave the scrub untouched for the few years, though the soil round the plant should be clean. Fifteen feet apart is said to be a good dis at which to plant them. The long delay in cro might be partially obviated by crushing the twigs and l at about the third or fourth year, the expressed juice fo very fair rubber. There is another variety, the Sa Biglandulosus, which forms quite an exception to all well-known sources of rubber: it grows at a high elev and, therefore, in a comparatively cool climate. Mr. Thompson, formerly in charge of the Jamaica Cin Plantations, now resides at Chapperel, Sante Fe de Bu Columbia, where since 1891 he has planted 70,000 se trees, which are doing well. It grows exceedingly ra and crops are obtained from the fifth or sixth The first yield is about 1 lb. per tree or 150 lbs acre, worth say 2*s.* 6*d.* per lb. Mr. Thompson's plant lying at an elevation between 6,000 ft. and 7,000 ft. the sea level, is land quite useless for other purposes so much success has attended his efforts that at Mon Rio Sinu, Mons. M. P. Durand has put in no less than 10 cuttings and seedlings, which are now flourishing. Thompson, so the *Kew Bulletin* reports, has offered Indian Government to deliver at the Nilgiris a large s of sapium plants and seeds insured to germinate for £1 Enquiries as to this tree are now being made by the p authorities in Sydney, and should the replies be satisfa no doubt an attempt will be made to acclimatise this We shall be glad to hear how the Indian Govern treats this important offer.

COFFEE SHADE TREE.

Sun-dried Erythrina Lithosperma loppings, &c., contain per ton:—

61·50	lbs.	Nitrogen.
57·38	„	Potash.
14·92	„	Lime.
13·68	„	Phosphoric Acid.

Seed cured under Messrs. Sutton and Sons' advice.

Orders should be booked early for the coming crop of seed from the parent trees of above analysis at Rs.6 per pound containing about 2,000 seeds. *Germination guaranteed.*

Only thornless variety extant, and is not procurable anywhere save from the

MANAGER, ARIENKOW ESTATE,
Shencottah.

LETTERS TO THE EDITOR.

TERRACING *vs.* DRAIN-CUTTING.

SIR,—With reference to the letters on the above subj your issues of the 5th and 19th February, and especia regard to "1 in 1's" objection about the space lost b natural slope of the ground between each terrace, I wr say that in Darjeeling, where the rainfall is as great as i South Indian planting district, and the soil, if anythi richer and more liable to wash, terraces two and more f depth have been maintained for years without any face and without any slopes or loss of space for them.

The secret of this, as pointed out in my first letter, is the evenness and flatness of the terraces preventing any c tion or concentration of drainage water which would be nece to do the scouring.

In regard to "1 in 1's" assumptions and argument about e slopes between terraces, I am unable to follow him, as he s assumed impossible conditions; for, in *any* hill, the slopes any) between terraces must always be greater, *i.e.*, steeper, an the slope of the hill, and can never be parallel to it.

Thus if 4-ft. terraces are cut with a 1 in 1 slope between ch pair, the slope of the hill in which they are cut cannot be eeper than 1 in 2, if the terraces are not less than 4 ft. above ch other; and if they are as much as 8 ft. above one another, e hill slope will still be only 2 in 3, *i.e.*, much less than in 1. Moreover, in every case, the hill will not require to be t into for more than half the width of the terrace, or 2 ft. ly and not four in this case. Of course, as stated by "Nemo," r wider terraces, the cutting and cost will be increased, but see no reason why they should be increased in width on e steeper hill slopes, where the trees of each terrace might e 6 ft. or any distance apart, and would be well above those the next lower one, with which they may be made to alternate so as to get more space, light and air.

And for the flatter hill slopes, the cost of an extra foot or wo in the width of each terrace would be comparatively very rifling. I must now leave the defence of "terracing" to my iends, for having many other pressing matters to attend to, am sorry I shall not be able to write any more on the subject.

ARCOT, } H. W. P.
nd March, 1898. }

GENERAL ARTICLES.

COCAINE MANUFACTURE IN INDIA.

WITH the view of increasing the cultivation of the coca plant—*Erythroxylon coca*—in India, the Curator of the Government Gardens n the Nilgiris has recently been requested by the Madras Government to obtain a supply of seeds annually, and offer for sale the lants rared therefrom. It is very satisfactory to note that, while he Madras Government is not prepared to engage actively in the anufacture of cocaine (the valuable alkaloid found in coca leaves), t is anxious to do all in its power to foster the cultivation of the lant in the Presidency.

It was introduced into Ceylon, from Kew, in 1870, and it is proable that the plants now cultivated in Madras came from the same ource. The suitability of the elevated lands in the Madras Presiency for the cultivation of coca has already been demonstrated in a eport by one of the Government Botanists, who, in addition, conidered that there should be no difficulty in extracting the pure lkaloid from the leaves in such a laboratory as that possessed by he Medical Stores Department. The report was issued in 1890, hen the price of cocaine hydrochloride was about 20*s.* per ounce, ut in view of the comparatively small quantity then required in the residency, where the annual consumption amounted to about three ounds, the Government was not prepared to institute any experiments in the direction indicated by an enquiry made by the Secretary f State for India as to the economic manufacture of cocaine ydrochloride in the country.

Three years later the experimental cultivation made at the Sikkim inchona Plantations proved a failure, and further attempts to raise he plant were abandoned. In 1894, however, the Madras Governent was again approached as to the advisability of instituting xperimental cultivation on the lower slopes of the Nilgiris, the ailure of the Sikkim crop being apparently due to the too great levation, as well as to the unsuitable climate of that plantation. he Government carefully considered the subject, but decided that he demand in India for the alkaloid was too small to justify anyhing beyond experimental cultivation. The latter was accordingly ommenced, and the results which are now to hand are eminently atisfactory. In the early part of this year the Collector and the hemical Examiner of the Nilgiri Gardens submitted further reports ealing with the expenses in growing the plant and extracting the lkaloid, and as the Madras Government is assured that the use of he drug has greatly increased, that the alkaloid can be readily extracted, and that the plant flourishes on the Nilgiris, it considers that it might, for some time to come, be profitable to private individuals to take up the cultivation of coca.

The enormous consumption of the alkaloid throughout the world may be judged by the fact that 22½ million pounds of dried leaf are produced annually in Peru and Bolivia. This represents about 55,000 lbs. of cocaine. It is owing, most probably, to the great increase in the exportation of the plant from South America, and its consequent cheapening in the European market, that coca cultivation has not materially developed in India. Two artificial substitutes are at present on the market, but it is not known how far they will supersede the natural alkaloid.

Although the employment of coca is almost entirely limited to medicine, there are indications that preparations of the drug, such as coca wine, are coming into use as a beverage, and as the Indian plant is particularly rich in alkaloid, both the active principle, if carefully prepared, and the raw leaves would find a ready sale in Europe.

There is, moreover, no reason why Indian cocaine should not find as ready a sale in European markets as the alkaloid from South America.

CARICA PAPAYA (LINN) N. O. PAPAYACEÆ.

Extract from "Drury's Useful Plants of India."

Papaw-tree, ENG.; Pappoia umbbalay marum, MAL.; Pepeya, BENG. and HIND.; Pappali-marum, TAM.

DESCRIPTION.—Tree, 20—30 feet, without branches; leaves alternate, palmate, 7-partite; segments oblong, acute, sinuated, the middle one 3 fid.; fruit succulent, oblong, furrowed: calyx small, 5 toothed; corolla tubular in the male and 5-lobed in the female, divided nearly to the base into 5 segments; male flowers axillary in slightly compound racemes or panicles, white female ones in short simple racemes, sometimes on a different tree; corolla longer than in the male, yellowish. Fl. July.—W. & A. Prod. i. 352.—Wight Ill. ii. t. 106, 107.—Lindl. Fl. Med. 107.—Papaya vulgaris, Lam.—P. carica, Goertin.—Rheede Mal. i. t. 15.—*Domesticated in India.*

MEDICAL USES.—This tree has several valuable medicinal properties. The milky juice is among the best vermifuges known. A single dose is sufficient for the cure. The natives in Travancore repeatedly use it for children. In the West Indies the powder of the seeds is used for the same purpose. The juice of the pulp of the fruit is used to destroy freckles on the skin caused by the sun's heat.—(Wight, Lindley.) Anthelmintic properties have also been assigned to the seeds. They are also believed among the natives to be powerfully emmenagogue.—*Pharm. of India.*

ECONOMIC USES.—This remarkable tree was introduced from America, but is now found in most parts of the Peninsula. The fruit grows to a tolerably large size, and secretes a milky viscid juice, which has the extraordinary property of hastening the decay of muscular fibre, when the latter is exposed to its influence. A great deal has been written upon the various effects which this secretion produces upon animal substances, and there appears to be little doubt that the juice really possesses the wonderful virtues attributed to it. I have attempted to collect the most important remarks which have been written upon this subject, as I find there is still a tendency among scientific men to doubt the very peculiar properties of the juice. Humboldt thus writes (Travels, ii., 52, Bohn's ed.) concerning it: "I may be permitted to add the result of some experiments which I attempted to make on the juice of the Carica papaya during my stay in the valleys of Aragua, though I was then almost destitute of chemical tests. The juice has been since examined by Vanquelin, and this celebrated chemist has very clearly recognised the albumen and caseous matter; he compares the milky sap to a substance strongly animalised—to the blood of animals.

"The younger the fruit of the Carica, the more milk it yields. It is even found in the germen scarcely fecundated. In proportion as the fruit ripens the milk becomes less abundant and more aqueous. When nitric acid, diluted with four parts of water, is added drop by drop to the milk expressed from a very young fruit, a very extraordinary phenomenon appears. At the centre of each drop a gelatinous pellicle is formed, divided by greyish streaks. These streaks are simply the juice rendered more aqueous, owing to the contact of the acid having deprived it of the albumen. At the same time the centre of the pellicles becomes opaque, and of the colour of the

yolk of an egg; they enlarge as if by the prolongation of divergent fibres. The whole liquid assumes at first the appearance of an agate with milk of clouds, and it seems as if organic membranes were forming under the eye of the observer. When the coagulum extends to the whole mass, the yellow spots again disappear. By agitation it becomes granular, like soft cheese. The yellow colour reappears on adding a few more drops of nitric acid. After a few hours the yellow colour turns to brown. The coagulum of the Papaw-tree, when newly prepared, being thrown into water, softens, dissolves in part, and gives a yellowish tint to the fluid. The milk, placed in contact with water only, forms also membranes. In an instant a tremulous jelly is precipitated resembling starch. This phenomenon is particularly striking if the water employed be heated to 40° or 60°. The jelly condenses in proportion as more water is poured upon it. It preserves a long time its whiteness, only growing yellow by the contact of a few drops of nitric acid."

Browne, in his "Natural History of Jamaica," p. 360, states that "water impregnated with the milky juice of this tree is thought to make all sorts of meat washed in it tender; but eight or ten minutes' steeping, it is said, will make it so soft that it will drop in pieces from the spit before it is well roasted, or turn soon to rags in the boiling." This circumstance has been repeatedly confirmed, and, moreover, that old hogs and old poultry, which are fed upon the leaves and fruit, however tough the meat they afford might otherwise be, is thus rendered perfectly tender, and good if eaten as soon as killed, but that the flesh passes very soon into a state of putridity. In the third volume of the Wernerian Society's Memoirs there is a highly interesting paper on the properties of the juice of the Papaw-tree by Dr. Holder, who witnessed its effects in the island of Barbadoes, and writes of them as known to all the inhabitants. The juice causes a separation of the muscular fibres. Nay, the very vapour of the tree serves this purpose; hence many people suspend the joints of meat, fowls, &c., in the upper part of the tree, in order to prepare them for the table. It is not known whether the power of hastening the decay of meat be attributable to the animal matter or fibrine contained in the juice of the papaw. The resemblance between the juice of the papaw-tree and animal matter is so close that one would be tempted to suspect some imposition, were not the evidence that it is really the juice of the tree quite unquestionable.

The tree grows very quickly, and bears fruit in three years from first putting down the seed. The fruit itself is pleasant to the taste, and is much relished in this country both by natives and Europeans. In order to render meat tender, either flesh or fowl, the simplest operation is to hang the flesh under the tree for two or three hours, which is quite sufficient. I have repeatedly tried it. Another way is to wrap the meat in the leaves and then to roast it. In a tropical climate like India, where meat requires to be cooked quickly, in order to provide against rapid decomposition (on which account it is often found very tough), there should be one of these trees in every garden. Wight mentions (Ill. ii. 36) that the farmers in the isle of Barbadoes mix the milky juice with water, and give to horses in order (to use their expression) "to break down the blood;" and this is a remarkable fact, that the effects of this dissolving power in the fruit is not confined to muscular fibre, but acts on the circulating blood. The negroes in the West Indies employ the leaves to wash linen instead of soap. The natives in India both pickle and preserve the fruit for their curries. It is very palatable even raw.—"Humboldt. Don. Wight. Lindley. Pers. Obs."—*Drury's Useful Plants of India.*

LIBERIAN IN THE STRAITS.

Weeding. ONE of the most important points to be observed by a planter, if not the most important, is the regular weeding of his clearing. To keep your estate free from weeds from the beginning is a very easy matter, but having once allowed it to get into a weedy state, it is a most difficult thing to get it clean again, and it will take about two years of regular weeding and will cost almost as much as opening a new clearing; indeed, it may often be advisable, instead of trying to put a neglected place to rights, to abandon it altogether and to open new land.

To keep an estate clean, you must start weeding immediately after burning the jungle and you must continue to do so regularly at once every month. A good many old and experienced planters a that it does no harm to have weeds; that on the contrary, in ground, it prevents the top soil from being washed away and the roots of the coffee from being exposed to the sun. Believe the planter who argues thus is either a fool himself, or he thinks you are one. I was of this way of thinking myself long ago, b never thought my listeners the fools; in my case, I was the ignor led into the mistake by advice given to me by men who sh have known better. It is rather a sorry joke to play on a y planter, and I don't see where the fun comes in in misleading a fellow who appeals to one for advice. And yet there are a numb people who delight in taking, what they are pleased to term, "a out of a new hand.

The weeds will absorb all the nourishment instead of the y coffee, and if allowed to grow up will suffocate it altogether; will also prevent the rain from penetrating the soil and reachin roots of the coffee.

If you could turf your estate carefully and keep the turf trim and short and the soil cleared and forked for about 2 feet all r each coffee tree, as has been done experimentally in some gar your coffee would no doubt greatly benefit; but this would be a difficult matter, and it would cost much more than weeding fact, it would never do on a coffee estate on a large scale.

The weeding, as I have already said, must be done regularly the very beginning at least once a month, the weeds must be t out with the roots and then be either burned or buried; never them lying about your clearing between the coffee; if you do, will grow up again in no time and be worse than before. If an e is clean, a woman will be able to weed from 200 to 400 trees in a but if your estate is under weeds, she will not be able to do than 10 to 20 trees. Thus 100 acres of coffee may be kept clea 6 to 12 coolies; but if once under weeds, you require from 33 t coolies to do it.

The result of neglect will not show itself on a coffee tree once; you may have your weeds growing a long time and not se bad effect, but when once the bad effect is seen, when your tree seedy and begin to fall off and to die out, then it will, in most be too late for remedial measures; no amount of weeding and m ing will then bring the tree back again to its former strong healthy condition, and even if your tree eventually recovers, i only be after a long course of careful nourishment and nursing any sign of improvement will be noticeable. Prevention in this again, is better than cure.

But should you by accident get your coffee into such a bad that the trees become bare and look as if they were dying, alth you have for a long time already been carefully nursing them, despair. As long as there is life there is hope, and very often, the trees are looking their worst, the experienced eye may dis signs of improvement and recovery. Let me compare such a with a man brought by fever to the very point of death: he has got over it and is on the path to recovery; he feels like a new child, and yet everybody who meets him will say, "Heavens, is the matter with you? You do look bad."

Let me now imagine that from one cause or another your e has got under weeds and that you wish to get it clean. This is

PLANTING BOOKS.

Map of Ceylon Plantations, Plain Rs.8. Inga Va, Rs.2-8. Areca As.12. Cocoanut Planter's Manual, Rs.4-10. Ceylon Manual of Che Analyses, Rs.3-10. Tobacco Cultivation, Rs.3-10. India Rubber (n the Press). Coffee Planter's Manual (now in the Press). All about S Rs.3-10. Coffee Tree and its Enemies, Rs.1-8. All about Grub, F Brazil as a Coffee Country, Rs.1-8. Cardamoms, Re.1. Ceylon Soils and Manures, Rs.1-9. All about Aloe and Ramie Fibre, Re. 1. Buildings, Rs.4-4. Coffee and Chicory, Rs.1-13. Coffee Cultivati Ceylon, As.5. Tea Cultivation and Manufacture, As.5. Tea Cultivat Ceylon, As.6. Tea at high elevations in Ceylon, As.3. Manuring Estates, As.8. To Economise Labour Supply, As.12. Planting, Prunin Preparation of Tea, As.12. Salt for Agriculture, As.8. Cocoa, Cocai its Salt, Rs.2. On the Importance of Lining, As.4.

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ne only in a systematic way: first, weed about 2 to 3 feet round e coffee trees to give them air and to prevent them from being ffocated; and, secondly, begin weeding your estate at one end and right on for 21 days. Weed as far as you can get within that ne, then begin again from the point where you first started. You ll get through it much quicker this time, perhaps in 14 days, is leaves you seven days more to go on weeding new ground, and on every time you will be able to weed more trees with the labour rce at your disposal, until at last you will be able to get right rough the whole of your estate within 21 days. Then is the time gradually decrease the number of coolies employed on weeding, ntil your clearing is again in a normal condition; then you can get rough your work with the ordinary number of coolies. But, let e tell you, this will take about two years.

My reason for advising you to weed once in 21 days is that most the weeds blossom within 21 days, and you must therefore weed efore that time, otherwise they will throw out new seed, which will e blown and scattered all over the estate, and the weeds instead of iminishing will spread more and more every time you attempt to estroy them.

Some planters may advise you to go right through with your eeding, even if it takes you two months to get round the first time. ach time you go round, they say, you will have less weeds and be ble to do it in less time; the second time you will probably be able o get through your weeding in one month. But if you follow this dvice you will never succeed in getting your estate clean again, nuch less be able to keep it clean.

upplying. Having planted out your trees, you must not imagine that you can be idle and wait uietly until they begin to bear. There are many things to do and o look after; of course you cannot do them all at once, so let us ake them one by one. First there is the "supplying." This means hat when a tree has died or does not grow to your satisfaction, it s replaced or supplied by another. After the first good shower of ain—or, rather, after every good shower—you put your men on to his work. Don't wait until you actually want to do the work, to ind out which trees want supplying, but do this beforehand. Examine each tree as you walk through the plantation, and wherever ou find a tree that wants supplying, mark it in some conspicuous ay, say, by putting in an *anakkayu*. You know then what you ave to do, and immediately after a good shower you are able to do t, without your coolies running all over the place with baskets full f young trees and changkols, hunting here and there for dead trees hich require supplying.

Very often a planter hesitates to replace a seedy-looking tree, hinking that with care and attentive nursing it may recover. This s misplaced sentimentality, although it is quite a natural human eeling, and I have given way to it myself more than once. In some ases I have had the satisfaction of seeing the tree recover, but in ost cases I have been disappointed. In a practical planter's life entiment is out of place: we are here to plant coffee with the disnct object in view of making it pay, and there is no doubt that it ays much better to replace a doubtful tree, by a fresh and healthy ne, than to try and improve it.

As I go on I find myself repeating the words, "this is of great nportance," and I have come to the conclusion that everything ith regard to coffee planting is of great importance, and I cannot lose this chapter without calling your attention again to the importnce of early and regular supplying.

The expenses of weeding, buildings, supervision, drains, etc., will e exactly the same for an acre of good and healthy trees as they ill be for an acre of seedy, half-starved or struggling-for-life iserable things; but whilst the former in course of time will give ou handsome returns and great satisfaction, the latter will always emain a source of heavy expenditure, without returns, but with nlimited worry, trouble and dissatisfaction. Now judge for yourelf, and say whether supplying is of importance or not.

Handling and pruning. A friend of mine once remarked: "Any fool can plant coffee and open an estate, but it is in the pruning and handling where the xperience of the planter shows itself." It is an art, and you must now what you are about. If you don't, you had better leave the tree lone, and probably much less harm will be done than by cutting off ny quantity of wood and branches which cannot be put on again. If eft to itself, the coffee will generally develop into a nice and regularly haped tree, and grow up to a height of 20 to 30 feet. But we do not llow our trees to grow so high; generally we top them when they are about 5 or 6 feet above the ground, just so high that a cooly can pick the berries without having to use a ladder. One might wonder why a tree should be cut off 5 feet above the ground when its natural habit is to grow up to 20 or 30. The reason is that when the tree grows up, the higher branches develop at the expense of the lower ones, whilst a tree topped 5 or 6 feet above the ground will shoot all its strength into the lower branches and make them spread over a much wider surface and bear more fruit than otherwise; then there is the advantage, as I have mentioned already, that you do not require ladders to pick your crop, which is a distinct advantage, for the use of them will always cause a certain amount of damage to the tree, however careful you may be.

Some planters believe in letting their trees grow up to any height, notwithstanding the above difficulties and the difficulty of handling and pruning such trees, and as marriage is a failure when it is a failure, so is a coffee tree a success when it is a success, and both ways—"the topping" as well as the "not topping"—have their advantages and their disadvantages; but where eminent men differ, I do not consider myself a competent judge to decide which of the two systems deserves preference.

Coffee is a plant which requires continual looking after; from the moment it is put into the nursery until the last day of its existence it must be attended to regularly every month. There is, for instance, the handling. As the coolies go along weeding they remove all suckers and dirt from the trees, bend the branches, and clean the stem from all parasites, ants, etc. Suckers are branches which grow upwards from the tree, and which would, if left alone, develop into another stem.

Then there is the pruning. But before I begin to describe the pruning, I must explain the different parts of the coffee-tree, or you will get bewildered about suckers, gormondisers, primaries, etc.

A tree consists of (1) the stem; (2) the branches growing out of the stem: under these I do not include the "suckers," which I have already explained, but branches growing out of the stem and spreading to the right and left of the tree and not growing upwards, these are called the "primaries"; (3) the branches, which grow out of the primaries, these are called "secondaries"; (4) of the branches which grow out of the secondaries, these are called "tertiaries"; and (5) the branches which grow upwards out of the above branches, these are called "gormondisers." Gormondisers, in the same way as suckers, will develop into individual trees and will take away the strength from the original tree, they nourish on it, and it accordingly suffers, and therefore all suckers and gormondisers are carefully cut off and not allowed to develop to any size.

The tree may have as many primaries and secondaries and tertiaries as nature will produce, but never allow any secondaries to grow out of a primary within a space of six inches from the stem, so that light and air can always penetrate right along the stem, and it has the additional advantage of rendering it easy for the cooly to examine the tree and to keep it clean. All dead wood is cut off the tree. Never allow more than one branch to grow out of the tree from one and the same spot: if there are two or three, remove the others and only leave the one which promises to turn out the best. All branches growing upwards and downwards and inwards instead of outwards are cut off.

This is the art of pruning, so far as I can explain it here. It is easy when you know it, but, etc.

Mr. J. Ferguson, in his "Coffee Planter's Manual" (third edition, Colombo: A. M. and J. Ferguson, 1894), among other remarks about pruning, writes: "Where a plantation has been carefully tended in its earlier years, where it has been properly and regularly handled, it will not, when it arrives at maturity, give much trouble in trimming; and except the cutting of dead wood, or wood that has borne (for the same wood never bears twice), removing suckers, cross branches, and exuberant shoots from the centre and along the primaries in the way hereafter explained, there will be very little to do in that line for some time. It is after an estate has borne two or three crops—after it has, either from overcutting or from want of timely handling, been allowed to get matted, umbrella-topped, or choked up by superfluous wood—that the real difficulty of pruning begins. It is now, too, that the planter's skill and science are called into play." And, later on, "I now come to what I consider the most important step in the pruning of the tree—the secondaries—because you have to deal with what is to give a great part of your next year's crop."

A writer, whom I have already quoted, "W," a well-known planter of great experience, in an able paper on Pruning, which he addressed

some years ago to the Planters' Association, describes this operation, and that of handling generally, so well that I take the liberty of giving his directions in his own words:—"To ensure a regular and strong tree, then, handling must be resorted to early. In doing so, take off all the branches that are within six inches of the stem, and make an opening of one foot in circumference in the centre of the tree. This, besides strengthening the primaries, will permit the sun and air to penetrate, both of which are beneficial to the growth of the tree as well as the ripening of crop. Next run along the primaries and single out the secondaries, leaving no pairs, but one secondary only at each joint, on either side of the primary alternately. This, I know, is thought very unnecessary by a large class of planters, but if they will only study the tree itself, they will find that although nature throws out the secondaries in pairs almost invariably one is stronger than the other; and by a little care the strong ones can be left and the weak ones taken off. It is better to look to the strength of the wood than the quantity of it. As secondaries left on too near the stem tend to weaken the primaries, so do they when left in pairs, cramping, as it were, that expansion which takes place under the treatment I advise."

DISTRICT ASSOCIATIONS.

KANAN DEVAN.

Quarterly General Meeting held at Munaar on 26th February 1898.

PRESENT:—Messrs. L. Davidson, P. Reed, T. W. Schmid, A. F. Martin, W. D. Martin, A. H. Mead, R. F. Russell, A. C. Williams, W. Milne, F. J. Graham, J. Hamilton Hunter, R. Hedger, H. M. Knight, A. H. Sharp (*Hon. Sec.*), A. W. L. Vernede (*Hon. Member*), and Mr. J. A. Rees (*British Resident*).

Mr. Knight was asked to take the chair.

Read and adopted minutes of last meeting.

Proposed by Mr. Davidson that Mr. J. A. Rees be invited to become an Honorary Member of the Association. Seconded by Mr. Knight and carried.

Roads and Communications.—Read letter from the President of the District Board, Madura, of the 24th December 1897, stating that, considering the difficulties represented by the planters, special provision had been made in the budget for 1898 and 1899 in addition to the ordinary maintenance allotment. Remetalling road from Periakulam to Thanee Rs. 2,000. Remetalling road from Periakulam to Batlagundu Rs. 1,500. The maintenance allotment for the road from Thanee to Bodinaickanur has besides been raised from Rs. 100 to Rs. 200 per mile. Regarding the question of raising the maintenance allotment of the Devikulam ghat road, the District Board Engineer has promised to shortly inspect the road and submit his recommendations to the President, District Board. Recorded with satisfaction.

It was proposed from the chair and carried that a vote of thanks be accorded to the District Board.

Read copy of the report of the estimate for a road between Pallapallayam and the Chinnar river. Proposed by Mr. Davidson and seconded by Mr. Sharp that this report be referred to a Sub-Committee, Messrs. A. F. Martin, W. Milne, J. Payne, and the Honorary Secretary to consider and reply to the same. Carried.

Read letter from the Secretary, Public Works Department, of 11th January 1898, having reference to connecting the Periakulam-Munaar road with the proposed new line of communication through the Annamallai Hills. Read the Honorary Secretary's reply. Recorded.

The Honorary Secretary stated that he had on the 25th January 1898 again written to the Dewan, urging Government to take over the maintenance of the district outlet road between Munaar and the Mettu, and he has been informed that the matter had been referred to the Chief Engineer. Recorded.

Mr. Davidson informed the meeting of what Messrs. Finlay, Muir and Co., as representing the Kanan Devan Hills Produce Co., Ld., had been doing in regard to this matter, and stated he now understood that the British Government intended to at once commence work on the Udumalapet-Chinnar road, and that he hoped they would ultimately see good cart road communication between that town and Talliar. He also stated that he had been informed that the British Government intended to provide funds for repairing the present road from Thanee through Bodinaickanur to the foot of Kotagudi ghat and to push forward this work as rapidly as possible.

The present position in regard to the western outlet to Cochin was also explained by Mr. Davidson.

It was proposed by Mr. Hedger that Messrs. Finlay, Muir an be thanked by the Association for the trouble they were taki regard to these road matters, and that as they were in communi with the British and Travancore Governments, the Association s have in their hands all correspondence in connection with roads for this district. Seconded by Mr. W. D. Martin and ca

Arrack Shops.—Read letter from Messrs. Milne and Arms deprecating the erection of arrack shops throughout the di Proposed by Mr. Davidson and seconded by Mr. Sharp that the Association has no desire to prevent the reasonable establish of arrack taverns, the Secretary be instructed to write t magistrate with a view to his securing the Association co-oper in the matter of properly regulating the sale of liquor genera natives and the proper location of arrack taverns, or the suppre of them in the event of their becoming a menace to the peace community or injurious to the natives themselves. Carried.

Dilatoriness of the Police.—The Honorary Secretary state he had received a letter from the Superintendent of Police, date December 1897, asking for the names and numbers of the referred to at last meeting. These had been accorded to him, b further reply had been received. Mr. Vernede then stated th knew the Superintendent of Police was acting in the matter. Honorary Secretary then stated that the number of fraudulent yali contractors was largely increasing, and he believed that thi mainly due to the ease with which they were able to avoid war presumably by bribing the police.

Game Reservation.—The Honorary Secretary stated t neighbouring portion of the Cardamom Hills had lately been p under reserve, and he had reason to believe that it was to be tended as to practically prevent the planters from shooting any on the Cardamom Hills. As every one he had spoken to was u mous on the subject, he had written to the Dewan pointing out such action would come hard on men who by their calling obliged to live in the jungles. The Honorary Secretary pro the following resolution, viz., that a gun license should inste established to prevent the indiscriminate slaughter of game. resolution was withdrawn on the Chairman pointing out that a license was procurable from Government.

Telegraphs.—Read letter from the Director-General of Teleg of 15th February 1898, to Messrs. Finlay, Muir and Co., Cal stating that the telegraph line could be extended to Munaa guarantee of Rs. 1,640 per annum for a minimum period of five renewable, if required, for a further period, the terms of the guar being that if the departmental share of the receipts from mes booked at Munaar fails in any one year to reach the annual s Rs. 1,640, the difference for that year is to be paid to the Tele Department. The account being closed annually, should receipts exceed Rs. 1,640 in any year, the excess to accrue Government.

Read letter from Messrs. Finlay, Muir and Co., dated 16th Feb 1898, stating that to save time they had given the necessary guar which they asked the Association to accept.

Proposed from the chair that Messrs. Finlay, Muir and C written to accepting the guarantee on condition that Mr. A. K. uses his best influence to have the line connected with the kulam Post Office and that Mr. Muir be thanked for his trou the matter. Carried.

Bodinaickanur Store and Rest-House.—Read letter from M Muir, making the following proposals, viz., that it would be convenient to build the new bungalow and store two or three further out from Bodi and towards the ghats, and that they wou prepared to discuss with the Association what they would charg looking after their interests.

Proposed by Mr. Knight that the offer made by Messrs. F Muir and Co. be accepted with thanks. That is, that the As tion takes up a new piece of land at a suitable place and buil bungalow there and a new store, Messrs. Finlay, Muir an undertaking to run the establishment at a cost not to exceed tw on every 10lb. gross weight passing through the store. Second Mr. Hedger and carried.

The following Sub-Committee was appointed to select and s the land, viz., Messrs. Sharp, Davidson and Knight.

Mr. Knight in a short speech thanked the British Reside having kindly atttended the meeting.

The meeting closed with a vote of thanks to the chair.

A. H. SHARP, *Honorary Secreta*

NILGIRIS.

PROCEEDINGS of a General Meeting of the Nilgiri Planters' Association, held at the Masonic Hall, Ootacamund, on February 5th, 1898.

PRESENT:—Messrs. R. James, D. Cockburn, H D. Wilbraham, J. Hardy Pascoe, B. A. Marden, L. W. Grey, H. Barber, J. W. Minchin, and G. Windle, *Honorary Secretary*.

Mr. Rhodes James was elected to the chair.

1. Proceedings of last meeting were taken as read.

2. The Honorary Secretary reported that in consequence of the lack of support from other Associations, the idea of a joint Agricultural Chemist must be given up. There was some talk, however, amongst individual planters, of a few subscribing, possibly in conjunction with a firm, to procure a private chemist. The amount which the members of the N.P.A. had been willing to subscribe to a general fund was Rs.2,100 for a term of years.

3. *Lady-bird Fund.*—Read letter from the Hon. Mr. H.P. Hodgson, dated January 28th, enclosing copy of the Proceedings of the Madras Government, dated January 17th, stating that Rs.2,000 would be contributed towards Mr. Newport's expenses in procuring and importing lady-birds, and requesting the Accountant-General to place an advance of Rs.1,000 at Mr. Newport's disposal. Also read letter from Mr. Newport, dated January 27th, to the Honorary Secretary, U.P.A. With reference to this latter, the Association considered that Mr. Newport should bring the lady-birds with him, but could give no opinion as to what arrangements he should make for their subsequent despatch. It was considered advisable for his headquarters to be on the Lower Pulneys on his return, on the score of expense and the greater virulence of the green bug on the Lower Pulneys. The Honorary Secretary, in compliance with the suggestion of the Chairman, U.P.A.S.I., will correspond with the Hony. Secy., Lower Pulneys Planters' Association. The amount subscribed by the N. P. A. and forwarded to the Secretary, U.P.A.S.I., was Rs.2,125; the Government of Madras has given Rs.2,000, U.P.A.S.I. Rs.2,000, and the Lower Pulneys P.A. promised not less than Rs.4,000, which would make a total of some Rs.10,000 available, if necessary, for the experiment.

4. The Hony. Secretary stated that he had paid Mr. Kenworthy Brown's fee, Rs.52/8, for his opinion on the contract forms applicable to Act XIII. of 1859, but that the opinion had not yet arrived.

5. The Superintendent of Police, Coimbatore, has placed a guard at Nellathorai during the coffee season. There having been complaints on the part of the police as to incomplete coffee passes, a specimen form, forwarded by the police, was shown to the members present.

6. Proposed by Mr. L.W. Grey, seconded by Mr. W. Rhodes James, that the Hon. Mr. H. P. Hodgson be again nominated as Planting Member at the expiration of his present period of office. Carried unanimously.

7. Mr. E. R. Kindersley's proposition was referred to the Planting Member for his opinion.

8. Criminal Procedure Code—Recorded.

A vote of thanks to the Chairman closed the proceedings.

W. RHODES JAMES, *Chairman.*
E. G. WINDLE, *Honorary Secretary.*

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5,00,000 Foreign Stamps, (well-mixed,)

Includes some very good varieties. The best offered at the price, which is extremely low.

No. 1a. Containing 100 Stamps, Rs. 1-4 (post free).
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„ 3c. „ 500 „ „ 5-4 „
„ 4d. „ 1,000 „ „ 9-4 „

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MARKET REPORT.

COFFEE.

Messrs. R. J. Rouse & Co.'s Weekly Coffee Report (February 18, 1898) says:—The supplies brought forward in Public Sale this week met a steady demand, good and superior descriptions being easily disposed of at full values.

Only one mark East India was offered, but this realised extreme rates.

Guatemala, of which the catalogues chiefly consisted, attracted fair competition, and fine colory qualities fetched very firm prices, but the common kinds sold slowly at irregular and easier values.

Futures have been rather firmer this week owing to a slight falling off in receipts, and the market closes 9d dearer than our last.

Messrs. Wm. Jas. and Hy. Thompson's Report of the Colonial Markets for the Week ending February 16th, 1898, says:—Bank rate 3%. Bombay Exchange closes at 1s. 3⅞d. Brazil Exchange 6¾d. Rupee paper 3½% 63⅝. Silver 25⅞d. per oz.

The moderate supplies at auction went off about steadily, prices at the close shewing no change; colory kinds continue to meet with good competition, ordinary and common being again dull and somewhat lower. Brazil markets are unchanged.

Daily receipts averaged 11,000 bags in Rio, and 11,500 bags in Santos.

Futures have ruled quiet, but at the close a decided advance has taken place of about 9d to 1s 3d per cwt., viz.:—Good average Santos in Havre, March delivery, fcs. 37.00, in Hamburg pf. 30½, and No. 7 low ordinary Rio in New York $5.75.

To-day's London official quotations are:—

	Feb.	March	May	July	Sept.	Dec., '98.
SANTOS ...	30/-	30/3	30/9	31/-	31/6	32/-

We quote:—

Ceylon, mid. to good mid.	95/@105/	Costa Rica, mid. to fine...	77/@108/
Do. small to low mid.	75/ „ 93/	Do. ord. to low middling.	53/ „ 76/
East India, mid. to good mid ...	78/ „ 93/	Jamaica, good to fine ord.	47/ „ 58/
Do. small to low mid.	63/ „ 77/	Do. greenish to fine colory...	70/ „ 125/
Guatemala, mid. to fine...	75/ „ 100/	African ...	28/ „ 30/
Do. good ord. to low mid...	55/ „ 73/	Columbian, ordinary ...	38/ „ 43/
Salvador, good ord. foxy greenish...	45/ „ 49/	Do. good ord. to low mid...	45/ „ 70/
		Do. mid. to fine...	71/ „ 98/

Receipts in Brazil to 16th February compare as follows with previous years:—

	1897-98. Bags.	1896-97. Bags.	1895-96. Bags.
RIO	3,178,000	2,573,000	1,843,000
SANTOS	5,018,000	4,060,000	2,626,000
	8,196,000	6,633,000	4,469,000

In sale:—

2 tierces Plantation Ceylon bought in.
1,260 bags East India { 35 bags Mysore new crop ... @ 78/6 @ 112/ ; 1,225 bags Coorg, new crop ... „ 58/ „ 107/
1,675 bags Guatemala, part London cleaned, part sold ... „ 31/ „ 102/6
327 bags Mexican, part London cleaned, part sold ... „ 36/ „ 54/6
5 bags Nyassaland ... ... „ 60/ „ —
35 bags Bolivian, London cleaned, part sold ... „ 27/ „ —
118 bags Costa Rica, part London cleaned ... „ 54/ „ 108/
441 bags Vera Paz, part London cleaned, chiefly sold... „ 50/ „ 84/
228 bags Nicaragua, part sold ... ... „ 34/ „ —
188 bags Salvador bought in.
3,327 bags Columbian, part London cleaned, chiefly sold. „ 38/ „ 98/6
14 bags Venezuelan bought in.
162 bags Guayaquil ... ... „ 31/ „ 40/
258 bags Peruvian, part London cleaned, chiefly sold... „ 27/ „ 97/6
95 bags Liberian Ceylon bought in.
52 bags Liberian Borneo bought in.
151 bags Liberian Johore bought in.
178 barrels Jamaica, part London cleaned, bought in.
23 packages Mocha, damaged ... ... „ 63/ „ 64/

On Quay Terms:—

954 bags Santos bought in.
121 bags Rio bought in.
176 bags washed Rio bought in.

Landed last week ...707 *tons. Deliveries* ...860 *tons. Stock* ...10,252 *tons.*
Do. last year ...443 „ „ ...543 „ „ ... 7,838 „

TEA.

Messrs. Gow, Wilson and Stanton's Indian, Ceylon, and Java Tea Report, dated February 18th, 1898, says :—

QUANTITY BROUGHT TO AUCTION IN LONDON

FROM 1ST JUNE TO DATE.

	Indian.	Ceylon.	Java.
1897-1898...	1,227,173 packages.	859,323 packages.	30,489 packages.
1896-1897...	1,259,919 ,,	803,242 ,,	29,035 ,,

30,825 *pkgs.* INDIAN
22,468 ,, CEYLON
— ,, JAVA
} Total 53,293 packages were offered in public auction this week.

The quantity of Ceylon Tea exported direct to markets other than the United Kingdom continues year by year to substantially increase, as shown in the following table :—

	1897.	1896.	1895.	1894	1893.	1892.	1891.
Lbs.	17,124,508	14,205,051	12,186,532	9,243,070	8,905,987	6,338,582	4,529,433

The undermentioned table gives details of the different markets to which these Teas were sent. Australia continues the most important, each year showing a satisfactory increase.

Distribution of Tea exported from Ceylon during the years 1897, 1896, 1895 and 1894.

	1897.	1896.	1895.	1894.
United Kingdom ...	98,930,059	93,936,361	85,753,339	75,348,644
Austria ...	19,883	31,556	5,335	6,934
Belgium ...	11,010	31,695	12,253	8,961
France ...	91,066	72,185	49,586	18,966
Germany ...	256,584	130,402	281,578	149,830
Holland ...	19,775	6,120	15,833	600
Italy ...	6,121	10,770	8,556	4,800
Russia ...	439,349	246,233	333,548	41,494
Spain ...	28,070	54,685	64,285	43,753
Sweden ...	52,875	16,395	750	500
Turkey ...	12,796	17,304	15,017	9,155
India ...	986,765	924,272	831,070	875,578
Australia ...	13,258,456	11,062,832	9,379,561	7,446,782
America ...	830,873	718,600	393,527	216,422
Africa ...	265,480	142,073	150,490	74,789
China ...	690,162	370,480	321,431	154,522
Singapore ...	47,191	93,445	34,351	26,465
Mauritius ...	11,790	124,254	186,096	106,675
Malta ...	96,262	151,750	103,265	46,615
Total lbs. ...	116,054,567	108,141,412	97,939,871	84,591,714

Indian. Another week of small auctions has added strength to the market, an improved tone being shown for all descriptions, and prices generally marking a distinct advance. The Official Wire gives exports to U. K. from 1st April to the middle of the month, as lbs. 132,420,000 against lbs. 130,460,000 for same date last season, and shipments for first half of month as lbs. 1,970,000, against lbs. 2,820,000 last year. A fine invoice from "Suddia Road" averaged 1/9 per lb. and included a small lot of B. O. P. which brought 4/2½.

Week's av. of Tea sold on Garden Account, 1898, 24,363 pk av. 8·25d. 1897, 26,551 pkgs., av. 9½d.

	1898. Pkgs.	1898. Price.	1897. Pkgs.	1897. Price.	1st June to date 1897-8. Pkgs.	1st June to date 1897-8. Price.	1st J date Pkgs.
Assam ...	10,395	9·70	12,988	11	437,677	9·97	438,58
Cachar & Sylhet...	7,248	6·79	7,655	7¼	238,739	7	223,48
Chittagong ...	175	6·50	—	—	5,237	7·19	3,02
Chota Nagpore ...	—	—	—	—	1,360	5·01	1,46
Darjeeling ...	1,095	10·80	961	1/1¾	61,256	11·9	56,63
Dooars ...	4,735	7	3,283	8	110,234	7·53	112,14
Kangra, &c. ...	424	7·61	—	—	7,554	7·23	5,32
Neilgherry ...	130	6	226	8½	5,340	7·03	3,38
Terai ...	—	—	192	6½	19,007	7·20	12,12
Travancore ...	161	6·45	1,246	7¼	24,951	6·44	23,86

Total sold on Garden Account 1st June to date 1898, 910,863 av. 8·84d. 1897, 880,037 pkgs., av. 9·11d.

Comparative prices of Indian Tea in London :—

		1898.	1897.	1896.
DUST.	(Fair ordinary, dark liquor) ...	3¾d	4¼d	4¾d
FANNINGS.	(Red to brown, strong rough liquor) ...	4¼d	4½d	4d
BROKEN TEA.	(Brownish to blackish, strong liquor) ...	6d	6½d	6¼d
PEK. SOUG.	(Blackish greyish, useful liquor).	6¼d	7d	6¾d
PEKOE.	(Greyish to blackish, some tip, useful liquor) ...	7¼d	8¼d	7¾d
PEK. SOUG.	(Blackish greyish, inferior liquor).	5d	5¼d	5¼d
PEKOE.	(Blackish greyish, some tip, inferior liquor) ...	5½d	6d	5¾d

Ceylon. Although the auction was lighter, prices were irregula frequently lower. Quality of offerings, though not so good as a mo two back, continues satisfactory and is better than during other p of equally low prices. Private telegraphic advice gives exports to for first half of the month as 4,500,000 lbs., against 2,800,000 lb year, and estimates the quantity available for the month as 6,250,00 against 6,500,000 for February, 1897.

Average for week 7·39d., against 8¼d. same period last year.

Ceylon Tea sold on Garden Account 1st January to date 162,904 pkgs., av. 7·95d. 1897, 144,937 pkgs., av. 8·03d.

Comparative prices of Ceylon Tea in London :—

		1898.	1897.	1896.
PEKOE SOUG.	(Ordinary leaf; fair liquor) ...	6d	6¼d	6½d
PEKOE	(Ordinary leaf, little twist; fair liquor) ...	6¾d	7½d	7¾d
PEKOE SOUG.	(Rather bold leaf; indifferent liquor) ...	4¾d	5¼d	5½d
PEKOE	(Somewhat bold leaf; indifferent liquor) ...	5¼d	5¾d	5¾d

Bank Rate 3 per cent. Exchange on London three months sig Calcutta 1/4 3/32. Colombo 1/4 3/32.

PUBLIC SALE OF SOUTH INDIAN TEA.

(AVERAGE FOR ALL INDIA 8·25*d.*) *February 18th.*

GARDEN.	Total. Quantity	Average. Price.	Broken Org. Pek. or Flowery Pekoe. Quantity	Broken Org. Pek. or Flowery Pekoe. Price.	Pekoe and Unassorted. Quantity	Pekoe and Unassorted. Price.	Broken Pekoe. Quantity	Broken Pekoe. Price.	Pekoe Souchong. Quantity	Pekoe Souchong. Price.	Broken and Souchong. Quantity	Broken and Souchong. Price.	Fannings, and Vari Quantity	F
Neilgherry ...														
Brooklands ...	130 p	6	24½c	7	60 b	† 5¾	...	...	...	...	46 b	5	...	
South Wynaad ...														
Perindotty ...	114 p	7	45½c	9	44	7	...	...	20	5¾	...	...	5	
Travancore ...	**161 p**	**6·45**												
Atchencoil ...	77	6¾	11	8¼	30	6	21	8½	11	5¼	4	5¼	...	
Bison Valley ...	52	6¼	23	6½	11	5½	12	7½	4	5¼	...	...	2	
Rockwood ...	32½c	5¾	...	...	32½c	5¾	...	...	...	...	...	...	...	

Teas marked thus † signify prices bid.

PLANTING OPINION.

A WEEKLY JOURNAL

WRITTEN BY PLANTERS FOR PLANTERS.

VOL. III.] COONOOR, SATURDAY, MARCH 19, 1898. [No. 11.

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SUBSCRIPTION.—Advance Rates: Yearly, Fifteen Rupees; Half-yearly, Eight Rupees; Quarterly, Five Rupees, and Monthly, Two Rupees, including postage. Single Copies, Eight Annas.

ADVERTISEMENTS.—From the 1st October, 1897, the charge for line advertisements will be: 4 as. per line for the first, 3 as. for the second, and 2 as. for the third and succeeding insertions. Five-line advertisements from Subscribers will be inserted for three issues for one rupee; non-Subscribers will be charged two rupees.

DOMESTIC OCCURRENCE.—The fee for inserting a domestic occurrence will be *One Rupee* for each insertion, payable in advance.

N.B.—Remittances should be sent to the Manager, "Planting Opinion," Esplanade Row, Madras.

IMPORTANT NOTICE.

The Business Offices of this paper having now been removed to Madras, all remittances should be made payable to the Manager of *Planting Opinion*, 3, Esplanade Row, Madras, who will also attend to all advertisements, &c. Letters to the Editor should be addressed to Coonoor, as usual.

SEASON REPORTS.

NOTICE.

TO OUR SEASON REPORTERS.

Please post your next reports to reach Madras on Friday, the 25th March, 1898.

Season Reports should be sent to the Printers, Messrs. ADDISON & Co., direct, and not to *Planting Opinion* Office.

Coorg.

POLLI BETTA, 15*th March.—Weather.*—A blazing sun and high east wind have been the order of the day since last report. Not a sign of rain. *Crops.*—Spike keeping fresh and healthy, but a good downpour is wanted early. *Public Health.*—A wave of sickness seems to be passing over the place. A regular epidemic of bronchitis and fevers appears to be prevailing in parts. Or is it influenza? Estates are paying off.

S. E. Wynaad.

DEVALA, 16*th March.—Weather.*—Since my last report the wind is still blowing strongly, not constantly but at intervals both by day and night. As soon as the wind stops, it is very hot and unbearable by day and night. *Crops.*—The spikes are still lingering from want of rain in the open, but in the shade the blossom is set and looks very healthy.

Nilgiris.

KULLAKAMBY, 17*th March.—Weather.*—Strong east wind and bright sunshine. No signs of rain. *Crops.*—Coffee crop practically over; good healthy spike and fair promise for next year's crop, if rain does not fail. Pruning and manuring in full swing. Prices of grain going down. *Health.*—Fair. *Labour.*—Plentiful.

Kadur.

MUDIGERE, 15*th March.—Weather.*—The east wind has been very strong, lasting quite four hours a day. 30 cents of rain were registered on one or two estates on 4th, which has brought out the blossom. Luckily the shower was very local. Rain now would be welcome. *Health.*—A few cases of cholera in Mudigere and small-pox has appeared in Chickmaglur. *Interesting items.*—The Volunteer Camp of Exercise takes place at *Saklaspur* from 5th to 9th, when a large attendance is expected. Another well-known planter

has passed away. Mr. McMaster died at Sumpsi last week He was for many years at Tuttapollium and was well known on the Nilgiris. It is good news to hear that the Dewan has asked the local Association to report upon the introduction of a Game Act, and a sub-committee has been formed to draw up a reply. A Game Act and a Wild Birds Protection Act would be welcomed by the many sportsmen in the district.

THE MERCANTILE ASPECT OF THE CURRENCY QUESTION.

It is always well to be acquainted with both sides of a question, however firmly convinced one may be of the overwhelming truth of the particular side one supports. Our readers have heard a good deal lately, both in this paper and in our Madras contemporaries, of the way in which producers view the problem. We therefore make no apology for attempting to summarise, as clearly and impartially as may be, the arguments used by a very influential majority of the trading firms of the country. For that purpose we shall avail ourselves of the annual address lately delivered to the Calcutta Chamber of Commerce by the President of that body.

The wisdom of the action of Government in refusing to join America and France to remonetize silver was universally recognized, in view of the disastrous consequences of the very sudden rise in the rupee from 1*s.* 5*d.* in January 1890 to 1*s.* $8\frac{13}{16}d.$ in August. The rapid and great fall that then took place averted a most terrible disaster. But, says the President, it is not so easy to share in the sanguine view held by Government, with regard to the present currency policy, which is causing such injury to trade. Until the gold standard scheme is made effective, he continues, Indian trade will continue to be hampered by sudden and violent exchange fluctuations. The alternative is to reopen the mints, but the present insecurity of sterling capital invested in India will be then incomparably greater. Some people hold that with open mints, the rupee would be fairly stable at between 1*s.* 1*d.* and 1*s.* 2*d.* But if it was impossible to prevent the steady depreciation of the international value of silver, when America was buying fifty-four millions of ounces yearly, and other countries were also buyers, how would it be possible to prevent this when India remains practically the only large buyer? He condemns very strongly the use of silver as a standard, as the metal will in time be practically unsaleable outside India, and stability of exchange with the outside world impossible. Within a month of the mints being reopened, the rupee would fall to 11*d.*, and could not rise above that so long as the present ratio between gold and silver coins prevails in Japan. In that country the gold and silver yen are interchangeable.

"The gold yen, if shipped to London, and minted, would outturn 2*s.* $0\frac{9}{32}d.$ The silver yen, if minted in India under the old conditions, would outturn a little under Rs.222 per 100 silver yens. The Exchange Banks could sell sterling in Japan at about 2*s.* $0\frac{1}{3}d.$, and could buy and ship to India silver yens which, if minted in India, would, as I have said, outturn Rs.222 per 100 silver yens, which is equal to about 11*d.* per rupee. The transaction would pay the banks so long as Indian exchange remained a fraction above 11*d.* It is therefore plain that the rupee could not rise above 11*d.* without being immediately arrested by shipments of yens; and this would last until Japan was denuded of yens, or until silver was maintained at a level above 29*d.* Under these circumstances the maximum rate for the rupee in India would be 11*d.* unless silver rose above ? per oz., with absolutely no certainty that it might not fall to or 6*d.*"

Eighty per cent. of India's whole trade is with gold-us countries; the countries of the world have declared gold; India should cast in her lot with them. Amer still has great hopes of inducing India, with the aid their powerful bimetallic allies in the British Cabinet, accept her scheme of remonetizing silver. This mean 1*s.* 11*d.* rupee, disastrous to the whole trade of the count as well as to all producers. The Government of India ha declared for a 1*s.* 4*d.* rupee. Of the two proposals, latter is obviously the only one to be even thought of. T alternative is the reopening of the mints, which means the mercantile community, either the immediate bankrup of the Government, or such a sudden and great rise taxation as would in all probability lead to another muti

We cannot refrain from pointing out how utterly familiar to the public outside of Madras, is the U. P. A. S scheme of imposing automatic export duties on a slid scale, rising or falling according to the current exchan No loss of revenue would ensue to Government, and con quently additional taxation need not be dreamt of.

To return to the arguments of the other side.

With an 11*d.* rupee, all sterling companies in Ind whose capital is exchanged at 1*s.* 4*d.*, would have im diately to write off a third of their capital. With a fi exchange capital would flow largely into the country a her agriculture and industrial resources would be en mously developed. The position in America at the pres day is worthy of notice. The threat of silver legislat prior to the last Presidential election, effected what great financial panic in July 1893 was unable to acco plish: the almost entire cessation of the usual credit fa lities, and such a withdrawal of English capital as has back the trade of the country to an enormous extent.

The present position is intolerable, and early and decis action is urgently required.

Such, in brief, are the most notable arguments advan by the President of the Calcutta Chamber of Comme in supporting the gold standard policy of Government. may be we have slurred over some, and omitted oth If so, it has been unintentional. Yet as they stand abo and if nothing stronger can be urged in support of a fi 1*s.* 4*d.* rupee, the adherents of an "honest" rupee n well take heart.

We had not meant here to offer any criticisms of own, but a few words may not be out of place. Produc cannot expect in any case to have things exactly as t wish them. They must give and take. Their scheme sliding scale of export duties will render the free coin of silver an easy matter. But it will not, as far as we aware, tend to obviate those very fluctuations in exchan which are the despair of the trade. Such stability can o be obtained by artificial means, *i.e.*, by Government fix the exchange value of the rupee by means of a gold dep in England. For the present, producers would proba feel more than content with an exchange of say 11*d.* to to bring it into comparatively close connection with value of silver. Yet in a few years it is probable that standard will fall lower still, apparently necessitating, f the producer's point of view, a fresh alteration of the fi exchange.

NOTES.

ssia in Ceylon.

A branch of the Russian Tea Firm, Messrs. Mochanoff, Peehatnoff Co., was lately opened in Colombo by Mr. Frank lkwill. A Russian Manager is expected to arrive in a tnight. This firm has for some time past been doing a ge trade in Ceylon tea by purchasing in London.

new transplanter.

Mr. George W. Claridge, a North Travancore planter, has patented an proved style of transplanter, which he claims to be perior to all other devices of the kind. The Indian ents are the Mercantile Mission Branch of Calicut. It is of urse impossible to pass an opinion on the invention with- t actual trial, but various advantages are claimed, such simplicity, thoroughness of work, roots not being dis- rbed, &c., &c. On receipt of six annas in stamps the gent will forward samples.

e American Tea Campaign.

In Mr. Bleckynden's annual report for 1897 to the London branch of the Indian Tea Association we te that about two-thirds of the total expenditure in shing Indian and Ceylon teas in America is devoted to vertisements. The consumption of British-grown teas in orth America increased by about 54 per cent. in two ars, against decreases varying from 13 to 53 per cent. in ner teas. The revised American customs regulations have d a marked effect in shutting out China and Japan teas.

anipuri Hill tea.

Mr. R. C. Wright, a Ceylon planter, has just returned from a narkable tramp through the Shan States in quest of the oure and unadulterated" Manipuri seed. He found the easily enough, but unluckily mistimed his visit, arriving the blossoming instead of the crop season. It was nd Nassam, the capital of the Taungbaing State, that best tea is grown. Nassam is 5,000 feet above the sea. is tea is the wild tea of Burmah, but round Nassam, and other places, it is largely, though rudely, cultivated and leaves manufactured into pickled or "leppet" tea. e travelling was exceedingly rough, but the natives d and inoffensive, very different from the Kachin tribes.

w plantation staples.

Para rubber is being very extensively planted up in Ceylon. Of the 100,000 seed raised at the Botanic rdens, over 25,000 were sold to planters in the island, ile the demand has been enormously over the supply. *mphor* trees are doing well at Hakgala, some being 9 t high, while of those distributed in 1895 in Galle some ve reached 12 feet. *Vanilla* and *Ipecacuanha* are both racting attention in Ceylon. We may mention that the ter is being experimented with on the Annamalais, with nts obtained from the Burliar (Nilgiris) Experimental rden. Ipecacuanha is a tiny shrub of a few inches in ight. Its root matures in a couple of years, when it ay be broken off and the stem replanted. Propagation easily effected by leaf cuttings. A warm, moist and eltered position is requisite, while shade is indispensable their well-being. They are planted a few inches apart. e market value of the crop of an acre of well-grown ecacuanha runs into close upon four figures. The initial cost of stocking and plantation, if done on a large scale, is of course enormous.

Depreciation in Ceylon tea shares.

The *Times of Ceylon*, never, it must be noted, of an over-sanguine temperament, draws a woful picture of the present state of both sterling and rupee produce companies of the island, as compared to the inflated period of 1895. Our contemporary writes:—"It is a very disappointing statement which we have to make: but not to face the situation would in no wise improve it, and it is better to regard things exactly as they are. The record of losses during 1897 on local quotations—accentuated this year to the present date—when reckoned on all the existing scrip, assumes astounding proportions; and use must be made of it to show the home authorities how adverse conditions have combined to check our prosperity—the prosperity at present, principally, of the European community in Ceylon. Its reflex action upon the island generally has not become very manifest yet, but must already be bringing its influence to bear in many directions." While the lower prices for last year certainly have a good deal to say to the critical position of affairs, it is beyond all question that exchange has had a greater effect. The net depreciation since 1st January 1897 in the shares of some fifty odd rupee companies is put at the astounding total of Rs.58,00,522. The present quotations, Rs.1,57,52,150, are, however, still higher than the par values of the scrip, which is Rs.1,49,20,040.

Prospects of Liberian coffee.

Your leading article upon Liberian coffee, writes the London correspondent of an exchange, sent me this week to the office of a firm of brokers who dispose of a good quantity of this product. The object of my visit was to put a few straight questions regarding the great fall in price from the time when Ceylon Liberian coffee was only 10*s.* per cwt. in price behind, middling plantation Ceylon realising 90*s.* against 100*s.* for Coffee Arabica. Upon the tables in the sample room were a number of samples of parcels on sale that day. It was evident from the cursory glance given by some of the buyers, who dropped in and out to view the samples, and their rapid disappearance, that there were not a great number of bids to be relied on. I paid more attention to what was displayed and I made the Borneo samples considerably better than those from Ceylon. The head of the firm in response to my enquiries thus briefly put the case. When Liberian coffee was fetching 90*s.* it was a novelty. And its best point was that when *roasted* it turned out a splendid appearance for shop windows. But it has been tried and found wanting in its capacity to please the palates of English consumers. It is seldom we get any that is not unpleasant in flavour. No Liberian coffee has thoroughly pleased buyers. When the coffee is grown in Liberia it is most unpleasant in the cup, and it has been only very slightly improved in flavour by transplantation, although much in appearance. The last named coffee is only fetching 28*s.* per cwt. Ceylon is fetching 35*s.* to 40*s.* But, said the broker, you can buy Santos coffee 30*s.* to 40*s.*, which although sometimes a little earthy is certainly in many cases far more suitable for English requirements than Ceylon Liberian. They have got as near perfection as is

possible in Ceylon, but my opinion is it will never be popular. Thus the broker, and that is the latest up-to-date report on the prospects of Liberian coffee on this side.

The Produce Market. Supplies continue to come forward in small quantities, reports the *Produce Market Review* of 19th ultimo, and, in fact, they are hardly sufficient to test the market. At this time of year the auctions are, as a rule, heavier than can be got through in the day, but now they are lighter than is often the case in the autumn. Advices of larger shipments have, however, now been received, and a better supply may be looked for during the next fortnight or so. Prices continue to show the same irregularity; the few fine lots offered have fetched quite as high prices, while medium and common have been difficult of sale, as importers were not prepared to take any reduction. Rather larger supplies of new crop Guatemala have been offered, and were freely taken for the export trade. Mocha continues dull of sale, and in plentiful supply, excepting fine transparent, which is exceptionally scarce. In the terminal market there has been a slight advance, owing to a falling off in the daily receipts, and heavy buying in Brazil which has caused a rise in the prices there.

Indian Teas.—The market has been fairly steady, the quantity brought forward not being in excess of requirements. The principal movement is in the finest grades, which are actively competed for at advancing prices. There appears to be little doubt that these descriptions, as is often the case towards the end of the season, will be in moderate supply in a month or two, and this has stimulated buyers to secure stocks while available. As we have previously pointed out, there is likely to be a deficiency in the crop of Assams, and as these teas have on the whole been uniformly the most desirable growths of the season, it will not be surprising if there is a general upward movement in their value before long. That there will be plenty of tea to meet the consumption is quite probable, but there is no doubt that the increase in the stock mainly consists of growths which throughout the season have for the most part been of poor quality, and which will continue to be comparatively neglected so long as the more useful sorts can be obtained at reasonable prices. There was a fairly good assortment offered at the public sales, which comprised 30,825 packages, and there was the same active bidding which characterised the sales for Assams and some of the Dooars growths for the past few weeks, while in most cases prices showed considerable firmness, and occasional advances were paid. The lower kinds sold irregularly, and those giving a poor infusion declined in value.

How water enters the soil. In an interesting paper entitled "Reasons for Cultivating the Soil," Mr. Milton Whitney, Chief of the Division of Agricultural Soils, V. S. Department of Agriculture, the author describes how water enters the soil, and its importance in plant economy. It is the most abundant substance found in living crops. On account of evaporation from the leaves, about thirty to forty times more water is needed in the growing period of the crop than is contained in harvested crop. The maintenance of a proper water-supply is therefore one of the most important functions of the soil. If the soil is loose and sandy, its granules are large and rain water soon s between out of the reach of the plants. Clayey soi the contrary has its granules very finely divided, consequently very close together. This results in downward movement of the water being very s Cultivation can do a great deal to assist or combat natural qualities of any soil. But the style of cultiva must be suited to the class of plant. Turning to staples, it is obvious that as a rule it is desirabl conserve all the moisture possible for tea, while it is the opposite with coffee, notably at the "winteri period. Besides the loss through transpiration of the lea water escapes from the soil itself either at weeds or d from the surface. *Ergo,* keep your estates perfectly from weeds in times of drought. A loose stirring of surface soil will kill weeds, and prevent surface evap tion. The principal uses of initial cultivation is to lo the soil to enable it to retain rainfall more fully. Secon to maintain that rainfall near the roots of pla Thirdly and fourthly, to admit fresh air to the roots, to enable them to penetrate the soil more easily. Subseq cultivation is chiefly to prevent loss of water by weeds grass, which use up great quantities; to keep the sur covered with a loose dry mulch to prevent sur evaporation.

If theoretical conclusions may be drawn from the ab we would suggest that deep cultivation for tea shoul undertaken just before, and during, the monsoon. S sequent cultivation should be shallow and continuous. V coffee, deep cultivation might be necessary about Jan to induce "wintering." When the blossom is set, l cultivation would conserve the moisture requisite to s the young berry. Deep cultivation just before the so west monsoon should be avoided, and the growth of w encouraged within a reasonable extent. Subsequent cul tion to be shallow and often, according to the mois required.

A soil with a compact surface quickly dries out, and water-supply fluctuates rapidly and excessively, to detriment of most crops during their growing pe Weeds are generally to be excluded from the crop bec of the water they use up. But, says Mr. Whitney, are occasionally of use to the crops, especially during ripening period, because they help to dry out the soil thus hasten the maturity of the crop.

COFFEE SHADE TREE.

Sun-dried Erythrina Lithosperma loppings, &c., contain ton:—

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57·38	„	Potash.
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Seed cured under Messrs. Sutton and Sons' advice.

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MANAGER, ARIENKOW ESTATE,

Shencott

LETTERS TO THE EDITOR.

E. LITHOSPERMA SHADE COFFEE.

SIR,—As so many planters are interested in growing *E. Lithosma* as an aid to coffee fertility, they may be glad to know that the old coffee under that shade has blossomed magnificently, and, what is more important, has set the blossom; cwts. an acre may, I think, be fairly expected, and it is the more remarkable as all other coffee (other than *E. L.* shade) has done rather worse than usual. The fine show on the *E. L.* coffee has been obtained by a rather novel method of treating the shade trees which I hope to describe in detail at some future date; but in the meantime I shall be glad to show the coffee to any planter who cares to see it.

RIENKOW, SHENCOTTAH,
11*th March*, 1898. B. NELSON.

DRAINS AND TEA-PRUNINGS.

SIR,—In going over a neighbouring estate the other day, I was struck with the way in which the prunings were disposed of. Shallow 6-inch trenches were dug *down* the face of the hill, the earth from which were spread over the prunings, which were of course very "light." This reminded me of what occurred to me this year, and by accident some drains were left full of tea-prunings, and heavy rains ensuing, made me go round to inspect what I thought to be the awful state of wash resulting from burst drains. To my surprise, they had kept perfectly open, all silt, rubbish, &c., falling into them from above, were held by the interlacing twigs of the prunings, affording a perfect waterway beneath.

A neighbouring field, which had its drains kept clear of all prunings in the orthodox way, suffered a great deal from blocked drains, affording a striking contrast. Then I remembered that a Ceylon planter had tried the very same thing, which was noticed in your paper a month or two ago.

I have always taken a keen interest in the subject of draining, but this result astonished me not a little. I intend carrying it out thoroughly this year, with alternate drains to compare the differences. There is one precaution, and an essential one, to be taken: the prunings should be laid as thickly and evenly as possible (they may stand at least a foot or so above the level of the upper bank) *from end to end of the drain*. If there are gaps in the system, the drain will be liable to burst at that point.

ECKSYZED.

WEEDING OF TEA ESTATES.

SIR,—In these days of small profits and high exchange, it seems to me that every attention should be paid to small economies in the field and factory. A rupee saved per acre on weeding, say, or cultivation, picking, pruning and what not, mount up to a goodly sum at the end of the season. There are generally speaking two principal styles of weeding in South India; mamoty scraping and handweeding, supplemented by such works of cultivation as digging, forking and trenching. Being short of coolies, and the totes being very dirty, I tried mamoty scraping as the quickest way to get the place fairly clean again. It acted beautifully at first, the grass and other weeds dried up and died out almost completely. I intended to follow this up with a forking to mitigate the inevitable wash of the loose surface soil that I dreaded. Unluckily heavy rains occurred before my forking was even commenced, and the results in wash were something horrid. Drains blocked and burst, and the land cleared of almost every bit of surface soil disturbed in the mamoty-scraping.

Cheap the operation was in one way, but very nasty and expensive in another. Being still short of labour, and anxious to clean up the tote thoroughly, I have been recently experimenting with the Assam fork, which is at right angles to the handle and used like a mamoty. This I find to be extremely satisfactory in all ways. The pattern I use is the 4-pronged one, which can, I believe, be obtained from Madras (Leighton & Co.); I don't think the other local firms supply it. The mere weight of the fork drives it into hard soil about four inches or so, and an easy pull brings the clod of earth forward, reversing it completely. It is in fact a very cheap form of "clean digging." The first forking costs me 3 rupees per acre, two succeeding ones only 2 rupees, total 7 rupees for the year. Add one thorough hand-weeding in the year at 5 rupees, total for weeding and cultivation 12 rupees, which is the usual cost for hand-weeding. Hand-weeding, however, entails extra cost for cultivation, which if similar to that given above, only done with the ordinary fork, will cost quite 10 rupees if not 12. Ten rupees per acre saved is no small thing. It is possible that as good work could be done with the Assam "kodallie grubber," which is a smaller edition of the quintanie. The ordinary mamoty is both too broad and too light to dig in hard land, unless at a great cost.

"ASSAM FORK."

AGRICULTURAL SCIENCE.

SIR,—I have read with interest the letter of "Erin Gobra" which appeared in *Planting Opinion* of the 5th March, and as in that issue you expressed a regret that you had not received more communications on the subject of scientific manuring, I venture, although an inexperienced planter, to address you on the subject.

From the reports that have appeared from time to time of the District Association Meetings, it appears that, with one or two exceptions, practically the whole of the planting industry of Southern India has rejected the proposal made at the last U. P. A. Meeting of securing the services of an agricultural expert.

Now it seems to me that there may be two reasons why planters should vote against this proposal. They might do so on the ground of expense, or they might urge that they have no faith in agricultural science.

Those who have been influenced by the former reason appear at first sight to have had some grounds for their decision. For in years like the last two or three, at any rate in this district, one certainly cannot afford to throw away an anna. But I maintain that even if scientific advice should not reveal the art of obtaining better crops, it would at least save us from enormous waste. When one considers the thousands of pounds that are yearly spent on manures, the salary of an agricultural chemist does not seem a very large item. And I feel sure that most estates, by learning how to obtain the best value for the money which they expend on manure, would more than save any contribution they might be called on to pay towards an agricultural expert's salary.

Those, on the other hand, who have rejected the proposal by reason of their disbelief in agricultural science, are, doubtless, veteran planters, who would point to the "good old times" and tell you that, without the aid of any new-fangled and scientific theories, they have got their bumper crops for many years by employing old and approved methods which have stood the test of time.

And, no doubt, an ounce of practice is in most cases to be preferred to a ton of theory. But I would ask, has the accumulated experience of these *laudatores temporis acti*,—some of it, perhaps, acquired in Ceylon,—proved itself capable of coping with the present state of things? With a rising exchange and falling prices, with the scourge of disease ever at our doors, are we in a position to despise any new methods, however speculative, however visionary? Are we in a position to condemn

without a trial, I will not say the magic of a Mr. Quarme, but even the "fairy tales of science"?

A Planter of no importance.

Kadur District,
9th March 1898.

TERRACING *vs.* DRAIN-CUTTING.

Sir,—I note with regret that "H. W. P." has felt constrained, through press of work, to conclude his share in what promised to be a very interesting correspondence. It is a great pity that those planters who have had actual experience in terracing their estates do not give the public the benefit of their knowledge. A contribution from Darjeeling would be especially valuable.

To refer to your correspondent's letter, which contains statements that appear very startling to me. He alleges that the Darjeeling terraces, of two or more feet in depth, have been maintained for years without any face walls and without *any slopes or loss of space for them.* In other words, that the sides of the terraces are perpendicular. This beats me altogether. For if terraces are made with perpendicular sides without retaining walls, it is very obvious that to obtain such sides one must cut into the solid below the terrace, throwing the loose earth on the terrace to be dug below. For it is utterly impossible to maintain *loose earth* in a perpendicular position for two or more feet in depth. Or is the "natural angle" of engineering a myth?

"H. W. P." says I assume impossible conditions in my argument about the loss of space from terracing *re* area occupied by the slope of the terrace wall. It may well be that the slopes of the terraces are always greater than the slope of the hill, but the mere fact of there being a slope at all proves my contention of loss of area occupied by that slope. To prove my point by an illustration familiar to all, *i.e.*, the excavations on bungalow sites or railway embankments. If a person stands on the edge of the embankment, he will find that there is a very considerable distance between him and the bottom of the excavated earth. The earth thus thrown down is not patted into any particular shape, it is resting at its own natural angle, and the looser the earth, the gentler will be the slope. It is precisely the same, on a smaller scale, with terraces. And the loss of area occupied by the excavated earth must be—given identical texture of soil—in direct ratio to the steepness of the hill side. The steeper the hill, the greater the necessity of terraces, with the inevitably greater loss in planting area. I can see no possible escape—on paper at least—from this dilemma.

I have no wish to write any further on the theoretical side of this question; indeed, I had hoped to have tested the matter practically ere this, but circumstances forbade. It will not be long, I hope, before I can set forth the results of my trials for what they are worth. For, wrong or right in my theories, I am determined to be right in practice!

A last word *re* loss of area, letting the slope question take care of itself. It is a common practice in hill districts to plant at a given number of feet apart, measuring the distance on the *surface.* Thus a steep hill side (1 in 2) planted at 6×6 (without reckoning loss of plants of rocks, drains, &c.) will give very nearly 1,400 plants against the 1,210 planted on the flat. I only mention this as a detail, for personally I am a great believer in wide planting.

"1 in 1."

GENERAL ARTICLES.

SUPPLIES.

How often in going around a coffee estate with a planter, he is heard to exclaim, "Do what I will, I *cannot* get my supplies to come on." I would in all humility give my views on this matter. First and foremost, then, good must be obtained. This is absolutely essential if you your supplies to eventually develop into sturdy hea bushes. Seed obtained from a district noted for its disease carries, I have observed, a taint of this disease i plants raised from such seed suffering more from *Hem Vastatrix* than plants raised from seed obtained from a trict where comparatively speaking leaf disease is norm less prevalent. Obtain these good seed, paying, if ne sary, a good price for it. You will find this truer econ in the end. Having obtained your seed, raise it in made for the purpose. Now the usual plan adopted for ting supplies out in the field is, if I am not mistaken, known and everywhere understood as "ball plantin That this is a most excellent mode I readily admit, bu the same time I maintain that "basket-planting" is a superior and more modern method; not, however, "bas planting" as is generally understood, not that pro where soil from a neighbouring shola is used to fill baskets, the seedlings being transplanted into these, k watered and allowed to grow until such time as the monso burst, when they are put out in the places assigned to th in the field. No, "basket-planting" is a splendid wa getting one's supplies to "come away," but I would haz the proposition that the basket should contain someth more than mere jungle soil. A mixture consisting in ev 5 parts of $\frac{2}{5}$ good jungle soil, $\frac{2}{5}$ths good cattle manu dried and reduced to powder, and $\frac{1}{5}$th sand is, I find, mirable. The seedlings, after having been transplan from the nursery beds to the baskets, very soon comme to grow, and by the time

> "The days are cold and dark and dreary
> And it rains and the rain is never weary,"

you have splendid plants in the full sense of the word. introduce, however, such a plant into an ordinary sheet coffee without having made preparations for its recept would be foolish. The plant has been brought up u the best of food, and on the best of food it must be ma tained. A month or so before actual supplying is taken hand, all supply pits should be re-opened and their conte scattered away from the pit. Then as soon as the S. W. m soon shows signs of "setting in" these pits should be filled with the surrounding *surface* soil. This soil on estate worked on modern principles, an estate that is wh is liberally manured, is usually rich in plant food; on this supply, having partially perhaps wholly exhausted the ginal nourishment contained in the basket, will thrive f year or two. After that it becomes a unit in a whole one many trees which go to form the entire estate, and is trea as such. The maiden crop from every "supply" shou be stripped early in the season, when in fact the bean is its embryo stage. This would enable the tree to establ itself thoroughly, would avert that catastrophe vulga known as "going back," so often experienced on you coffee under a heavy yield, and in the long run would p better. The third year of its existence would—certai should—find your plant vigorous, matured and prepar to carry, let us say, a 6 cwt. crop, and in every probabil this for a series of years. In thus writing I am not labo ing under a fit of *cacoethes scribendi*, but merely seeki for criticism, light that is, more light to lighten the da ness which even at the fag end of this XIX. century enwr many a thing, important and otherwise.

D.

CHEAP RAILWAYS FOR PLANTING DISTRICTS.

THE importance of good and cheap communications in
v districts or countries is undoubtedly great. Cheap and
cient communications are demanded by all. But very few,
eed, of the men whose voices swell the chorus take the
uble to possess a practical knowledge of the subject they
ofess to take such an interest in. The question of railway
mmunication is a strong case in point. "Give us, oh,
e us a railway!" is a cry frequently uttered by those
note from sea or rail highways. Now there are railways
d railways. There are broad-gauge, metre and narrow-
uge lines, the cost decreasing in proportion. A light
o-foot railway may not be perfection, but it is very cheap.
bridle-path is not exactly a "Queen's Highway," but
ves its purpose nevertheless. It resolves itself into a
estion of common business sense, and every intelligent
mber of the community should be able to take a part in
solution. The amount of traffic practically decides the
ality of the line. If very heavy, it would be absurd to
rtail initial cost on account of a temporary saving in
penditure. But if the traffic be light, as it usually is in
w or semi-opened districts, it would be still more absurd
burden the country with an expensive outfit in rails and
ling-stock that would have no chance for many years to
me of paying interest on its capital. Here, in South
dia, when a planting district urges the importance of
ilding a railway to tap its existing traffic and develop its
sources, the usual objection urged by Government is that
won't pay. This objection is invariably based on the
timated cost of a broad or metre gauge. With no grasp
any alternative gauge, the representatives of the district
ually have to subside for a while. After many years of
lay, the line is at last sanctioned, when the case, by mere
se of time, has proved beyond all doubt that the proposed
lway will pay well. But why this expenditure of time
d energy?

Government must be satisfied that a certain minimum
terest on construction will be earned. Roughly speaking,
ight two-foot six line will cost only half as much as a
oad gauge. Consequently, and bearing in mind the
proved carrying powers of the latest light lines, the
ances of a light railway proving a financial success are
st double those of its rival.

The present-day exponent of light railways is Mr. Calthrop,
no has proved, by the standing example of the Indian
arsi line, that light railways are eminently suited to
is country. In a paper read early last month before
e Royal Colonial Institute, Mr. Calthrop put the case
ry clearly. He supposed that a given colony had the
m of £600,000 to spend on railways. By spending £3,000
mile, it could get two hundred miles of line; at £6,000 it
n get one hundred miles; at £9,000 only a little over
ty-six miles. Now assuming that each mile produced
hundred tons of traffic in a year, the line costing
,000 a mile would bring forty thousand tons of traffic
port; that costing £6,000 a mile sixty-thousand tons,
d the cheapest—and longest—120,000 tons. To put
e case from another point of view—as the *Times of India*
ites—the burden of interest upon the earnings of each
ile. Supposing a guarantee of three per cent. is given
the Imperial Government, the quota that each ton has to contribute for interest is in the case of the shortest and most expensive line 9*s.* 9*d.* a ton; in the case of the £6,000 per mile line 6*s.* 6*d.*, and in the case of the £3,000 per mile line only 3*s.* 3*d.* But as a colony is in many cases a new country, needing development, it is of great importance to carry a line as far into the interior as it can be carried with profit. Here again the advantage of a light railway is demonstrated. As Mr. Calthrop puts it, "if it be possible to halve the estimated cost per mile of any projected line, you will get either twice the traffic area for the same money, or, if the line be restricted to the same length, the profits which it may earn will be, per cent. of capital cost, twice that of a line of double the cost, and consequently the prospects of a financial success are made much more certain." The colonies which take to light railway construction now will set out upon the enterprise under conditions more favouring than any that attended earlier undertakings of the same kind. The newer types of locomotive and rolling stock have revolutionized the whole process, and have secured the maximum return on a minimum outlay. Take one feature alone, the uniformity which Mr. Calthrop has introduced in the minimum axle-load. To borrow a definition of his, the maximum strength of permanent way upon any railway is controlled by the maximum axle-load proposed to be used upon it This axiom appears to have been lost sight of by earlier constructors of light railways, who in giving to locomotives a heavier axle-load than to wagons have had to provide an unnecessarily heavy rail. Mr. Calthrop has secured a maximum carrying capacity on the minimum weight of rail by adopting a uniform axle-load throughout the train for engines as well as wagons. But this is only one of the economies which come to the help of the latter-day constructor of light railways. The carrying capacity in relation to the weight of rolling stock has been increased to an extent that was scarcely dreamt of half a generation ago. The contrast between the new and the old *régimes* may be briefly indicated. The average English railway wagon weighs from four to six tons and carries a maximum load of seven or eight tons. The Barsi low-side wagon, which has now been in successful use in this country for a year, weighs 4 tons 2 cwt., and carries a maximum load of 15 tons 18 cwt., or nearly four times its own weight; the high side wagon weighs 5 tons 7 cwt. and carries 14 tons 13 cwt., and the covered wagon weighs 5 tons 18 cwt. and carries 14 tons 2 cwt.

The Wynaad and the Planting Industry of Southern India, by FRANCIS FORD, Re. 1.

The Planting Directory of South India, Re. 1-8.

Tea Planting from Seed to Cup in Tamil, with English Translation. Re. 1.

Sketch History of the Planting History of Wynaad, by the late ADOLPHUS ARTHUR WRIGHT. Re. 1-8.

Science and Coffee, by the late MR. WM. PRINGLE, M.S.C.I., Re. 1-8.

Report of Observations of Injurious Insects and common Crop Pests during the year 1883, with methods of Prevention and Remedy, by Miss ELEANOR A. ORMEROD, F.R.Met.Soc., &c., Re. 1-8.

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SORTING TEA.

We believe that the tendency towards careless sorting is becoming universal, and that it should be checked, and perhaps the strongest reason in favour of more careful sorting is that the buyers and brokers complain of too many sorts. Take, for example, a merchant who dealt in coins: he would not object to finding several rupees in the bags of pice sold to him as copper only. It is strange that sorting machinery, instead of becoming more elaborate and delicate, has become more "simple," and the latest developments put temptations in the way of the Manager. A screw is provided at the lower end of the cylinder by which it can be depressed, *i.e.*, a ready road is opened to hurrying over the work when there is a press, and the tea can be *rushed* through. It is well worth thinking of. How much fine tea can you afford to present gratis to the buyers of your coarse tea, in order to save time and trouble? Is it just possible that you give away the price of an extra sorting machine by hurrying through one month's tea? Suppose that you make 72,000lbs. of tea in one month (= 900 maunds = 30 maunds daily), and that by hurried sorting you lose 3 per cent. of Orange Pekoe, and this Orange Pekoe loses 6 annas per pound by getting into the low grade teas. The sum works out 72,000lbs. × 3 per cent. = 2,160 × 6 annas = 12,960 annas = 810 rupees, which is the price of an extra sorting machine. We have purposely overstated the case, but do think that many estates throw away the price of a sorting machine during the course of one whole season, and that some few actually sacrifice Re. 1 per maund of tea by careless sorting. (The figures above show a loss of Rs. 800 on 900 maunds of tea.) The buyers like careless sorting because it saves them trouble and gives them better value for their money; the brokers like it because it saves trouble; the Managers like it because it saves trouble; and the inventors of machinery supply what is wanted. We can remember the birth of sorting machinery, and some of the earliest machines had oscillating frames, into which a hand sieve could be placed and removed when sufficient tea had fallen through. Later on we took to cylinders five feet in diameter with battens inside, and the tea received the treatment which turns cream into butter.

Now we find the cylinder to be about 3 feet in diameter, the different "meshes" are 3 feet long, so that the tea has hardly time to get fully sorted; then on a heavy day you can depress the cylinder and get the work done quicker. The machine referred to is admirably adapted for its purpose (which is not good sorting, but to suit the ideas of the Managers, brokers and buyers). With sufficient inducement the maker of the machine could turn out one which would give two Orange Pekoes, two Pekoes, Pekoe Souchong, Broken Tea and Dust. But the price of the machine would be greater. Or two of the above machines would sort well if not made to "do" a large quantity. Of course, the great inducement to hurried sorting is to have big "breaks," but a reference to the tea sales will show that small breaks of good teas sell well. Referring to the last tea sale, we find a Dooars garden sold 4 chests Broken Orange Pekoe at 10 annas and 23 chests Pekoe Fannings at 5 annas 8 pies. The Broken Orange Pekoe was 400lbs., the difference in price 4 annas 4 pies, and if that Broken Orange Pekoe had been put in or left in the Fannings, the loss would have been over Rs.100, because 400lbs. of good tea would not have raised the price of the 2,300lbs. of Pekoe Fannings. There is danger in over-sorting, because the tea can be made very grey if kept too long on the sieves, but the idea is not to get more Orange Pekoe by *longer* sifting: it is that the fine teas should be extracted *before cutting* and kept separate from the fine teas extracted *after* cutting up the bulk. We are writing from experience, and so can recommend others to try more careful sorting. On some estates the first operation is cutting up the tea in a Reid's breaker, which forces all the tea through a No. 4 sieve. This mixes up all the grades; pieces of Pekoe Souchong leaf will get int Orange Pekoe. On these estates it would be well to try how Orange Pekoe and Pekoe can be got out without any breakin these two teas should be kept separate. Having got out the " tea, the residue could be broken in the Reid's breaker and mad Pekoe, Pekoe Souchong and Broken Tea. This double sorting necessitate more machinery, but the difference in prices ob would pay for that and leave a profit. We believe so much in sorting that we think it would pay to buy tea in the marke re-sort it—extracting the higher grades from the lower and s them separately. A company formed for this purpose would a able to score by making big breaks for America. Supposing they bought 500 maunds of Pekoe and 500 of Pekoe Souchon re-sorting, they extract 5 per cent. Orange Pekoe out of the and 5 per cent. Pekoe out of the Pekoe Souchong, they would 25 of Orange Pekoe, 500 of Pekoe and 475 of Pekoe Souch *Indian Planters' Gazette.*

SAFFRON.

Saffron has lately been honoured with a newspaper noti Bengal. Since the wane of Muhammadan glory in India, the s has lost much of the estimation in which it was held by the ri a dye, a spice and a medicine. Its name is seldom heard now-a except when that luxury, *Polao*, is required to be made, consists of cooking rice with meat, in which preparation saff used as a spice and a dye, as substitute for turmeric. Inde have heard many people in South India call turmeric by the of saffron.

But saffron and turmeric are entirely different things, th being part of a flower and the other a root or rhizome. In t saffron is called *Crocos sativus* and turmeric is called *Curcuma* The vernacular names of saffron are:—Sanskrit, *Kumkum*; gali, *Jafran;* Hindi, *Kesar, zafran;* Tamil, *Kungumapu;* T *Kumkum apave.*

The newspaper notice the article has lately received connection with the preparations that are going on for the ma of the young Maharaja of Burdwan. It is said that a large qu of cloth has been dyed yellow with saffron for use on that f occasion. But saffron is too valuable a product for ordinary a dye, turmeric being employed instead. In Europe it is u colour cheese, pudding, &c. In India it is chiefly used as a med in fevers, melancholia and enlargement of the liver, and is als to possess stimulant and stomachic properties, being spe efficacious in catarrhal affections of children.

Kashmir is the only place in India where saffron is culti We heard many people say that Kashmir is the only place world capable of producing this substance. This is a mistake, is also largely grown in Persia, and this Persian product is small extent imported into India in the form of cakes. S worth more than five lakhs of rupees are annually importe India from foreign countries, mostly into Bombay, from F The article is also produced in China. The European demand is met by the product of France, Italy and Spain.

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In the second year of his reign (1605 A.D.), on his way to Kabul, e Emperor one day halted on the side of the Behat river, which kes its rise from a fountain, called Virnag, in Kashmir. After ving a description of the fountain, the imperial author proceeds to eak of saffron :—"The river (Behat) expands much when it reaches ar the village of Pampur, which is ten *kos* from the city of ashmir. All the saffron of Kashmir is the product of this llage. Perhaps there is no other place in the world where ffron is so abundantly produced, the quality annually yielded ere being 5,000 maunds of Hindustan, or 4,000 maunds of Kabul Vilayet). I visited this place once with my father (Akbar) in e season in which the plant blossoms. In all other trees, we e they first get the branches, then the leaves, and after all the ower. But it is otherwise with this plant. It blossoms when it is ly about two inches high from the ground. Its flower is of a nish colour, having four leaves and four threads of an orange lour, in length equal to one joint of the finger. The fields of ffron are sometimes a *kos*, sometimes half a *kos* in length, and ey look very beautiful at a distance. In the season when it is llected, it has such a strong smell that people get headache from . Although I had taken a glass of wine, yet I was also affected y it. I asked the Kashmirians, who were employed in collecting it, hether it took any effect upon them, and was surprised by the eply, which was,—'they did not know even what the headache as.'"

On a subsequent occasion (1620 A.D.), Jahangir made a journey to Kashmir, passed through the tract of country where saffron is largely ultivated, and caused the following graphic account of the plant to e recorded in *Wakiyati-Jahangiri*:—"As the saffron was in blossom, His Majesty left the city to go to Pampur, which is the only place in Kashmir where it flourishes. Every parterre, every field, was, as far s the eye could reach, covered with flowers. The stem inclines wards the ground. The flower has five petals of a violet colour, nd three stigmas producing saffron are found within it, and that is he purest saffron. In an ordinary year, 4,000 maunds, or 3,200 Khurasani maunds, are produced. Half belongs to the Government, alf to the cultivators, and a seer sells for ten rupees; but the price ometimes varies a little. It is the established custom to weigh the owers and give them to the manufacturers, who take them home nd extract the saffron from them, and upon giving the extract, hich amounts to about one-fourth weight of the flower, to the public fficers, they receive in return an equal weight of salt, in lieu of oney-wages, for salt is not produced in Kashmir, and even in the eauty of the inhabitants there is but very little, *i.e.*, they have but ttle expression. They import salt from Hindustan."

Saffron was formerly a State monopoly in Kashmir, just as sandal ood is in Mysore at present. In Mysore, nobody is allowed to cut own a sandal tree, even if it happens to grow upon private land. This nasty pest is hard to get rid of; it will shoot forth and grow up s if under the influence of magic," remarked the owner of a garden disgust, as he uprooted a small sandal seedling with his hand, hile the writer some years ago was inspecting the fine fruit trees the an had reared in the neighbourhood of Seringapatam. Saffron is he dried flower stigma of the plant, not the entire flower. The igmas of nine flowers are required to make one grain of dried affron, or of 4,320 flowers to make one ounce of the marketable ubstance.—*The Wealth of India.*

DENITRIFICATION OF MANURE—THE OTHER SIDE.

II.

We shall now attempt to summarize the results of such f the world-famous Rothamsted experiments as bear on he interesting question under discussion. The German nvestigations may be considered to have proved that the conomic use of artificial fertilisers is impossible with xcessive quantities of stable manure of a certain condition. The results will now be considered of using nitrates and ther nitrogenous manure with the *usual quantity* of stable manure adopted in field practice.

In the field devoted to the culture of roots at Rothamsted, ays Professor Warrington, a considerable portion of the land has received annually for many years 14 tons of farmyard manure per acre. One half of this land has received in addition 3½ cwt. of superphosphate each year. These two farmyard manure plots are each divided into five portions, one receiving no further manure, the others cross-dressed respectively with nitrate of sodium, sulphate of ammonium, rape cake, and sulphate of ammonium with rape cake. Each cross-dressing supplies a known quality of nitrogen. What has been the effect of these cross-dressings?

Wagner mentions, at the commencement of his paper, that, under the conditions of practical agriculture, 55 per cent. of the nitrogen of nitrate of sodium may be expected to be recovered in the crop. In the pot experiments we have earlier mentioned the return has varied from 55 to 77 per cent. In the Rothamsted field experiments with barley, nearly 60 per cent. of the nitrogen of a moderate dressing of nitrate of sodium has been on an average recovered in the increased produce where a liberal amount of ash constituents has been supplied. Sulphate of ammonium Wagner finds to give on an average one-tenth less return than nitrate of sodium for the same amount of nitrogen applied. Bearing these facts in mind, the percentage of nitrogen recovered in the increase of crop by the use of nitrate of sodium and sulphate of ammonium in the mangel experiments appears quite satisfactory. The nitrate of sodium employed as a cross-dressing is utilised to the extent of 53·6 per cent. where 14 tons of farmyard manure are applied, and the utilisation reaches 68·9 per cent. where superphosphate is also employed. With ammonium salts, the utilisation under these two conditions is respectively 58·0 and 67·3 per cent. It will be observed that although superphosphate and farmyard manure give no greater crop of roots than farmyard manure alone, yet, when nitrate or ammonia is used in addition, the presence of the superphosphate produces a considerably greater increase of crop. The supply of phosphates becomes insufficient only when the supply of nitrogen is increased. We shall see presently that still better results were obtained when potash was supplied as well as phosphates. The cross-dressing of rape-cake has been utilised to the extent of 47·3 and 50·7 per cent., without, and with superphosphate. As the rape-cake itself supplies both phosphates and potash, the effect of additional superphosphate is here little perceived. The very heavy cross-dressing of ammonium salts and rape-cake, supplying 184 lb. of nitrogen per acre, is utilised to the extent of 48·6 and 50·7 per cent. under the conditions already mentioned.

It will be seen that when nitrate of sodium, or ammonium salts, were applied to land manured with superphosphate and sulphate of potassium, the increase in the quantity of nitrogen in the roots by the addition of these manures was practically the same as was obtained when these cross- dressings were applied to land receiving farmyard manure; the 14 tons of farmyard manure had thus no depressing effect on the action of the nitrate or ammonia. That the leaves, if taken into account, would not alter this conclusion is shown by the fact that the proportion of leaf is greatest in every case on the farmyard manure plot; the proportion of nitrogen recovered in the crop would thus be more increased on this plot than on the other, if the nitrogen in the leaf was taken into account. Where rape-cake is used with the farmyard manure we do not get so good a return in the roots as where the rape-cake is used without dung; with 2,000 lb. of rape-cake and 14 tons of farmyard manure we apparently reach an amount of organic manure in excess of what can be economically employed in an average season.

Notwithstanding the excellent utilisation of the nitrogen of the nitrate of sodium or ammonium salts when applied with dung to mangels, the increased weight of crop obtained from these cross-dressings is by no means so great as when the same cross-dressings are applied without farmyard manure. Thus the increase in root and leaf yielded by the nitrate of sodium on the farmyard manure and superphosphate plot was 9 tons 9 cwt., and that yielded by the ammonium salts 8 tons; while, without farmyard manure, the increase from similar dressings applied to land receiving superphosphate and sulphate of potassium was respectively 14 tons 5 cwt. and 11 tons 19 cwt. This considerable difference is due to the fact that nitrate of sodium or ammonium salts give a smaller, but *much more nitrogenous* increase when applied to dunged land than when applied to land receiving no other nitrogenous manure. The fact is of considerable practical importance to the farmer, but it has nothing to do with the question before us, which is: Does farmyard manure

interfere with the assimilation of nitrogen from other manures? That a smaller return is obtained in crop, per unit of nitrogen, as the supply of nitrogenous manure is increased is a fact sufficiently familiar to the agriculturist.

It is now, I think, clear that under the conditions in which farmyard manure is employed in the mangel field at Rothamsted the addition of a dressing of nitrate of sodium is attended with a good return for the additional nitrogen applied: this fact is shown by the earlier results when the nitrate was applied before the dung; it is shown still more in the later experiments, when the nitrate was applied as a topdressing to the young plants, and when the supply of potash to the crop was at the same time increased. The amount of farmyard manure employed in the Rothamsted field is a moderate quantity, and we must not therefore conclude that no deterioration in the action of nitrate of sodium will take place where much larger quantities of dung are made use of. The danger of denitrification reaching considerable proportions will increase as the amount of fermentable organic matter in the soil increases, and will be much aggravated by a wet condition of the land. The horticulturist employs dung in large quantities is much more likely to suffer denitrification than the farmer.

The mode in which farmyard manure is applied and the exte which it is incorporated with the soil must have some infl upon its action. When farmyard manure is ploughed in, it i intimately mixed with the whole soil, as in a pot experiment, left in a succession of layers separated by unmanured soil. roots are grown on the ridge system, the farmyard manure is fined to the centre of the ridge. In either case the denitrifying z limited in extent, and does not include the whole of the soil penet by the roots. There is clearly much scope for careful inquiry the most profitable method of employing dung with other ma

The results furnished by the field experiments at Rothamsted farmyard manure do not thus substantiate the conclusions o German experimenters; the results obtained by the latter wer to the special conditions of their experiments, and especially t large quantities of dung or straw they employed.

Apart from the subject of denitrification, there are many fa great practical value which are taught by the German experi which we had under consideration. Persons unfamiliar with method of pot experiments are apt to disregard the results obt in this way. It is foolish to do so. Pot culture, with the opport it gives of maintaining exact experimental conditions, is, indee only trustworthy method for the solution of many questions.

One fact which comes into great prominence in the Germa periments is that ordinary farmyard manure is valueless as foo plants until it is nitrified; this is surely the only conclusion w draw from the want of action of the manure when applied in quantities in the pot experiments. In the light of these result economy of large dressings of farmyard manure becomes questionable.

The conditions most suitable for the nitrification of conside masses of organic matter deserve attention. Dehérain's few periments on the subject are very suggestive. He mixed 100 of ordinary dry soil with 5, 10, 15, 20, and 25 parts of water; p these mixtures in a saturated atmosphere, so as to preserve uncha the proportion of water added; and at the end of ninety determined the quantity of nitric acid produced. A simila periment was made with soil with which 2 per cent. of farm manure had been mixed. The results found were as under:—

Water added to 100 soil.	Nitric acid formed per million of soil.	
	Natural soil.	Soil with farmyard ma
5	250	270
10	260	360
15	270	490
20	290	290
25	380	220

We see, then, that while nitrification proceeded more energeti in the natural soil with each increase in the amount of water a up to 25 per 100, this was not the case when farmyard ma equivalent to 20 tons per acre, was present. In the case o manured soil, much the best result was obtained with 15 of per 100 of soil. With 20 of water per 100 of soil there wa benefit from the addition of the manure; and when the water rea 25 per cent. the soil contained much less nitric acid than if no f yard manure had been applied; denitrification had clearly active in this case. Dehérain's results were not free from irregu ties, and deserve careful repetition; they are, however, quite sistent with the general ideas as to the most suitable condition the nitrification of organic matter furnished by the prolonge perience gained in France as to the most profitable way of mana artificial nitre beds, which in that country were kept under c These beds consisted of heaps of organic matter undergoing nitr tion. The proportion of water present was found to be of importance. As nitrification advanced this proportion was care diminished. If this precaution was neglected very little nitre finally obtained. We should judge, therefore, that moderately soils are those most likely to yield a profitable return with farm manure.

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ZOMBA, BRITISH CENTRAL AFRICA.

ıe immense difference between the manurial value of the solid liquid excrements of animals is shown in a striking manner in German experiments; and the analysis of the dung, and of the ıyard manure which they employed, showed that their effect on ɔs was plainly connected with the proportion of soluble and ve nitrogenous matter which they contained. The original void- of the animal have a far greater manurial value than the final luct of the manure heap which the farmer carries to his fields. he whole progress from the stable to the field the loss of nitrogen oing on, this loss falling on the most valuable constituent of the ıure, and resulting finally in a residue of comparatively inert ter. Maercker estimates the loss of nitrogen in the ordinary paration of farmyard manure as equal to 45 lb. per beast in one r. One practical conclusion from these statements is the economy eeding animals *on the land* whenever practicable. The whole ject of the economic preparation and preservation of farmyard ıure is being actively investigated in Germany.

DISTRICT ASSOCIATIONS.

NELLIAMPATHY.

Proceedings of a meeting held at Victoria Bungalow, Monday, h February 1898. Present:—Messrs. Everington, Fenton, E. nes, F. Jones, C. Hall, Watts and J. C. Abbott, *Hony. Secretary.* . E. Jones in the chair.

Proceedings of last meeting were taken as read.

Hospital.—Read letter from the Dewan forwarding copy of his oceedings showing that the establishment of a hospital on the lliampathies had been sanctioned on the terms agreed to by the sociation. Recorded with satisfaction.

Quit-rents.—Read letter from the Dewan and copy of his Pro- dings, in which various objections were made to the present tem of paying quit-rents by cheque and asking the opinion of the sociation. Resolved "that this Association admits that there are ections to the present system, and is prepared to accept the sugges- n of the Dewan that payments should for the future be made in h or currency notes."

Agricultural Chemist.—Read letter from the Secretary, U. P. A. I., stating that the scheme for securing the services of an Agri- tural Chemist had met with so little support that it would have be abandoned.

Roads.—The Hon. Secretary was requested to write to the Chief gineer with reference to the bridge at Poothoonda, the approaches which are usually flooded during the monsoon. It was agreed at Mr. Dupen be asked to construct the foot bridge at the bottom the old ghaut. A vote of thanks to the Chairman terminated e proceedings.

E. JONES, *Chairman.*
J. C. ABBOTT, *Honorary Secretary.*

WHAT MAKES THEM CRY?

You have a very sore finger, let us say. It may be a hurt, a boil— worse still, that fearfully painful thing, a felon. Oh, my! oh, my! hat a time you have been trying to protect that poor finger. It all the time getting hit or knocking against something. Simply keep it out of harm's way worries you more than doing a day's ork; and you don't succeed—and wouldn't even with a dozen licemen to help you. You are scared of a fly threatening to light it.

That is the principle on which Mrs. Elizabeth Allen couldn't bear e least noise. She had no sore finger, but she had what was still ore sensitive—a body full of sore nerves; weak, starved, unstrung rves. So the prattle of children, the closing of a door, the momen- ry roar of a wagon in the street, the clatter of dishes in the kitchen, e thousand and one sounds and noises that are in the air constantly why, the smallest of them struck her like a blow from a club. oises which are not regarded by a well person are like volleys of usketry to one in this condition. Millions of women know all about and plenty of men too—crowds of them. You recognise them on ght—those who are subject to this affliction. Their lined foreheads, eir bright, suspicious eyes, their self-protecting gestures and anner—you've seen them. Perhaps you are one of them yourself. If so, you'd give all your money and mortgage your future to have stronger set of nerves, wouldn't you? Let's talk about it two minutes, first quoting the lady's letter, which is dated May 11th, 1893, and written from her home, 263, Syston Street, Leicester.

"For many years," she says, "I suffered from indigestion and weakness. After meals I had a great pain at my chest. Every few days I had an attack of sick headache, and had to be constantly lying down on the couch; I strained and heaved a good deal, and spat up a sour nauseous fluid. As time went on I got very weak and nervous, and couldn't bear the least noise.

"I took all sorts of medicines and consulted doctors, but nothing did me much good. Later on I came to hear of Mother Seigel's Curative Syrup, and after taking it a short time the disease left me, and I was able to relish and digest my food. Owing to the virtue of this remedy I now keep in good health. (Signed) Elizabeth Allen."

And here is Mr. W. Nash, who says: "For fully ten years I suffered from periodic attacks of biliousness. At times a severe headache, preceded by excessive drowsiness; at other times vomiting, and retching for a whole day; at other times sleeplessness, pain in the chest, side, and stomach, coated tongue and bad breath—that was the way it acted with me. I grew very melancholy, and was not able to follow my business. I consulted doctors and used tonics, &c., but they only made me worse.

"I had constantly heard of your wonderful remedy, Mother Seigel's Syrup, but didn't believe in it. Then I read in *Wit and Wisdom* of a case like mine that the Syrup had cured; so I tried it, and the first bottle acted like magic. The pains left me the first week; I repeated my food no more, *and in a month all my ills were gone. Bless Mother Seigel for ever,* I say.—Yours gratefully, (Signed) W. Nash, 331, Goswell Road, E. C., London, October 2nd, 1893."

Now, where is there room enough on paper to sufficiently praise a medicine that will do what this one did for these two good friends of ours? All pain, remember, is nervous pain, and in the above case it was the foul and inflamed stomach which, by stopping digestion, starved the nerves and made them cry out. What won't cry out when it is starved? Babies will, men will, women will, nerves will.

Mother Seigel's medicine set the stomach in order and gave the nerves some food. Then what? Why, quiet, comfort, strength, rest, enjoyment. "Bless Mother Seigel," indeed.

MARKET REPORT.

COFFEE.

Messrs. R. J. Rouse & Co.'s Weekly Coffee Report (February 25, 1898) says:—A good demand prevailed at auctions this week for all desirable descriptions, and the moderate supplies were nearly all disposed of in seller's favour.

Over 3,000 bags East India were offered and attracted good competition, fine colory grades realising extreme rates and medium qualities fully previous values.

Only small quantities of Central American kinds were catalogued, and these sold at steady prices, except the commoner sorts, which went in buyer's favour.

Futures have been quiet, and there is little change to note in quotations, fluctuations having been unimportant. The market closes 3d. to 6d. lower on the week.

Messrs. Wm. Jas. and Hy. Thompson's Report of the Colonial Markets for the Week ending February 23rd, 1898, says:—Bank rate 3%. Bombay Exchange closes at 1s. $3\frac{3}{32}$d. Brazil Exchange $6\frac{11}{16}$d. Rupee paper $3\frac{1}{2}$% $63\frac{5}{8}$. Silver $25\frac{5}{8}$d. per oz.

All good qualities continue to be well competed for, other kinds being quiet and about steady. The demand for East India has been very good, and we quote an advance of 1s. to 2s. per cwt. on medium, and fully 2s. on fine which is scarce. Brazil markets are firmer.

Daily receipts averaged 10,300 bags in Rio, and 10,100 bags in Santos.

Futures close quiet, about 3d. to 6d. lower, viz.:—Good average Santos in Havre, March delivery, fcs. 37.25, in Hamburg pf. 30, and No. 7 low ordinary Rio in New York $5.60.

To-day's London official quotations are:—

	Feb.	March	May	July	Sept.	Dec., '98.
Santos ...	29/6	29/9	30/6	30/9	31/3	31/9

We quote :—

Ceylon, mid. to good mid.	95/@105/	Costa Rica, mid. to fine...	77/ @108/
Do. small to low mid.	75/ „ 93/	Do. ord. to low middling.	53/ „ 76/
East India, mid. to good mid ..	78/ „ 93/	Jamaica, good to fine ord.	47/ „ 58/
Do. small to low mid.	63/ „ 77/	Do. greenish to fine colory...	70/ „ 125/
Guatemala, mid. to fine...	75/ „ 100/	African ...	28/ „ 30/
Do. good ord. to low mid...	55/ „ 73/	Columbian, ordinary ...	38/ „ 43/
Salvador, good ord. foxy greenish...	45/ „ 49/	Do. good ord. to low mid...	45/ „ 70/
		Do. mid. to fine...	71/ „ 98/

Receipts in Brazil to 23rd February compare as follows with previous years :—

	1897-98.	1896-97.	1895-96.
	Bags.	Bags.	Bags.
RIO	3,240,000	2,614,000	1,864,000
SANTOS	5,079,000	4,127,000	2,648,000
	8,319,000	6,741,000	4,512,000

Auctions :—

50 casks and tierces 11 barrels 17 bags Plantation Ceylon partly sold at 77/ to 118/; 2,521 bags East India, viz. :—1,683 bags Neilgherry 54/6 to 106/6, 425 bags Nelliampathy 54/ to 103/6, 161 bags Shevaroy 57/ to 105/6, 252 bags Neilgherry old crop bought in; 1,485 bags Costa Rica, part London cleaned, chiefly sold at 45/6 to 112/; 1,783 bags Guatemala, part London cleaned, 37/ to 98/; 40 bags Salvador 42/ to 42/6; 60 bags Nicaragua, part London cleaned, 36/6 to 85/; 1,419 bags Columbian, part London cleaned, 52/ to 95/; 102 bags Mexican bought in; 220 bags South Sea Islands small part sold at 25/ to 26/6; 17 bags Trinidad 42/6; 400 barrels 430 bags Jamaica partly sold at 35/ to 86/; 23 bags Ceylon Liberian 40/; 31 packages Mocha bought in; 241 bags Guayaquil, part sold at 28/ to 33/6; 8 barrels Liberian Jamaica 25/; 44 bags Ceara bought in.

On Quay Terms :—513 bags washed Santos bought in; 1,210 bags Santos bought in.

TEA.

Messrs. Gow, Wilson and Stanton's Indian, Ceylon, and Java Tea Report, dated February 25th, 1898, says :—

QUANTITY BROUGHT TO AUCTION IN LONDON

FROM 1ST JUNE TO DATE.

	Indian.	Ceylon.	Java.
1897-1898...	1,260,799 packages.	876,603 packages.	30,489 packages.
1896-1897...	1,295,568 „	828,158 „	29,680 „

33,626 *pkgs.* INDIAN
17,280 „ CEYLON
— „ JAVA
} Total 50,906 packages were offered in public auction this week.

Exports from Calcutta direct to consuming countries outside the United Kingdom show encouraging increases, those to Australia and New Zealand being particularly hopeful. It is evident that this important market is gradually following the example of Great Britain in displacing its China consumption by Teas grown in India and Ceylon, viz. :—

	1897.	1896.	1895.	1894.	1893.
Australia & New Zealand ...	7,093,948	5,864,558	6,113,365	5,559,518	5,778,147
America ...	2,537,857	2,390,686	1,134,432	532,291	187,798
Other Places ...	6,159,067	5,795,426	4,397,836	4,143,079	3,225,713
Total lbs. ...	15,790,872	14,050,670	11,645,633	10,234,888	9,191,658

Indian. Offerings continue moderate; the autumn flavoured Te arriving are being freely taken, but other descriptions meet a week n medium Teas showing unusually good value at present rates. following averages are worthy of note :—"Mokalbari," 1/3; "Doom Co Samdang," 1/2¾; "Balijan," 1/2½; "Budla Beta B," 1/2; "Dar Con T Co Gyabarree," "Doom Dooma Co B" and "Sealkotee," 1/1

Week's av. of Tea sold on Garden Account, 1898, 23,808 p av. 8·15d. 1897, 28,498 pkgs., av. 9¾d.

	1898. Pkgs.	1898. Price.	1897. Pkgs.	1897. Price.	1st June to date 1897-8. Pkgs.	1st June to date 1897-8. Price.	1st J date Pkgs.
Assam ...	10,348	9·85	15,489	11¼	448,025	9·96	454,07
Cachar & Sylhet...	7,771	6·62	7,505	8	246,510	6·98	230,99
Chittagong ...	146	7·25	102	7½	5,383	7·19	3,12
Chota Nagpore ...	125	5	—	—	1,485	5·01	1,46
Darjeeling ...	1,495	10·16	554	1/1	62,751	11·07	57,19
Dooars ...	3,443	6·94	3,891	7½	113,677	7·51	116,03
Kangra, &c. ...	—	—	91	8¾	7,554	7·23	5,41
Neilgherry ...	—	—	130	7	5,340	7·03	3,51
Terai ...	235	7·46	234	6¼	19,242	7·20	12,35
Travancore ...	245	6·45	502	6½	25,196	6·45	24,36

Total sold on Garden Account 1st June to date 1898, 934,671 av. 8·82d. 1897, 908,535 pkgs., av. 9·13d.

Comparative prices of Indian Tea in London :—

		1898.	1897.	1896.
DUST.	(Fair ordinary, dark liquor) ...	3½d	4¾d	4¾d
FANNINGS.	(Red to brown, strong rough liquor) ...	4d	4¾d	4d
BROKEN TEA.	(Brownish to blackish, strong liquor) ...	6d	6¾d	6¼d
PEK. SOUG.	(Blackish greyish, useful liquor).	6¼d	7¼d	6¾d
PEKOE.	(Greyish to blackish, some tip, useful liquor) ...	7d	8½d	7¾d
PEK. SOUG.	(Blackish greyish, inferior liquor).	4¾d	5¼d	5¼d
PEKOE.	(Blackish greyish, some tip, inferior liquor) ...	5¼d	6d	5¾d

Ceylon. The auction comprised 17,280 packages but passed w any improvement in quotations, which were irregular and som below those reported last week. Taking quality into consideration teas are now cheaper than has ever been recorded.

Average for week 7·23d., against 8½d. same period last year.

Ceylon Tea sold on Garden Account 1st January to date 178,700 pkgs., av. 7·95d. 1897, 167,181 pkgs., av. 8·09d.

Comparative prices of Ceylon Tea in London :—

		1898.	1897.	1896.
PEKOE SOUG.	(Ordinary leaf; fair liquor) ...	5¼d	6½d	6½d
PEKOE	(Ordinary leaf, little twist; fair liquor) ...	6¼d	7¾d	7¾d
PEKOE SOUG.	(Rather bold leaf; indifferent liquor) ...	4¾d	5¼d	5¼d
PEKOE	(Somewhat bold leaf; indifferent liquor) ...	5¼d	6d	5¾d

Natal. During the last few weeks some invoices have been br forward from the "Kearsney Estate"; the teas were of fair make i although rather light in cup.

Java was not represented. 1,108 packages are catalogued for th fortnight.

Bank Rate 3 per cent. Exchange on London three months sig Calcutta $1/4\frac{3}{16}$. Colombo $1/4\frac{3}{16}$.

PUBLIC SALE OF SOUTH INDIAN TEA.

(AVERAGE FOR ALL INDIA 8·15*d.*) *February 25th.*

GARDEN.	Total.	Average.	Broken Org. Pek. or Flowery Pekoe.		Pekoe and Unassorted.		Broken Pekoe.		Pekoe Souchong.		Broken and Souchong.		Fannings, I and Vario	
	Quantity	Price.	Quantity	Price.	Quantity	Price.	Quantity	Price.	Quantity	Price.	Quantity	Price.	Quantity	P
Travancore ...	**245**	**6·45**												
Elderslie ...	119	5¾	...	...	57	5½	39	6¾	20	4¾	...	...	3	†
Isfield T Co ...	11	5¾	...	...	...	...	...	...	...	...	11	5¾	...	
STT Co Venture ...	115	7¼	48	8½	67	6½	...	...	...	...	...	...	...	

PLANTING OPINION.

A WEEKLY JOURNAL

WRITTEN BY PLANTERS FOR PLANTERS.

VOL. III.] COONOOR, SATURDAY, MARCH 26, 1898. [No. 12.

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SUBSCRIPTION.—Advance Rates: Yearly, Fifteen Rupees; Half-yearly, Eight Rupees; Quarterly, Five Rupees, and Monthly, Two Rupees, including postage. Single Copies, Eight Annas.

ADVERTISEMENTS.—From the 1st October, 1897, the charge for line advertisements will be: 4 as. per line for the first, 3 as. for the second, and 2 as. for the third and succeeding insertions. Five-line advertisements from Subscribers will be inserted for three issues for one rupee; non-Subscribers will be charged two rupees.

DOMESTIC OCCURRENCE.—The fee for inserting a domestic occurrence will be *One Rupee* for each insertion, payable in advance.

N.B.—Remittances should be sent to the Manager, "Planting Opinion," Esplanade Row, Madras.

IMPORTANT NOTICE.

The Business Offices of this paper having now been removed to Madras, all remittances should be made payable to the Manager of *Planting Opinion*, 3, Esplanade Row, Madras, who will also attend to all advertisements, &c.

Letters to the Editor should be addressed to Coonoor, as usual.

SEASON REPORTS.

NOTICE.

TO OUR SEASON REPORTERS.

Please post your next reports to reach Madras on Friday, the 1st April, 1898.

Season Reports should be sent to the Printers, Messrs. ADDISON & Co., direct, and not to *Planting Opinion* Office.

Coorg.

POLLI BETTA, 23*rd March.*—*Weather.*—During the past two days it has clouded up, and rain has fallen somewhere, as the thunder could be heard, probably where it is not needed. Anyhow it is confident that we shall be getting it soon. *Crops.*—Spike still holding out, but rain required soon to set large crops. *General Health.*—Influenza about as bad as it can be.

Nellampatty (British).

23*rd March.*—*Weather.*—Strong east wind ceased last week, since when we have had sea breeze, and clouds are now banking up and rain is not far off. If it comes soon, it will suit everyone, as spike that did not come out last rain is very forward and won't stand much longer. Blossom seems to have set fairly well and only wants rain to swell it now. *General Health.*—Fever showing up strongly among us.

Lower Pulneys.

DINDIGUL, 23*rd March.*—*Weather.*—No rain since 14th February, and no signs of any so far. Estates on the southern slopes, where a first blossom was out on 22nd and 23rd February, are more in need

of immediate rain than other parts of the district. *Crops.*—1897-98 shortest on record. Very fair spike all over the district, and if we get rain by first week in April, large crops will be picked. *Plant-diseases.*—No signs of leaf-disease now. Green bug commencing to show itself in parts. *General Health.*—Fever prevalent, as it usually is at this season of the year on the Lower Pulneys and Siroomullay hills. *Labour.*—Plentiful.

Nellakota. 16*th March.*—*Weather.*—Cloudy two days last week, and looked like rain. Sky clear now—blazing hot—and strong E. wind blowing. *Crops.*—The small blossom that opened in January has set very well Fine show of spike for coming crop, but rain needed badly. Rice 8 measures, grain 11 measures, ragi 16 measures per rupee in local bazaar. Why do prices of grain imported from Mysore still hold up? *Plant-diseases.*—What little leaf disease there was has all passed off. Trees this year have been left with sufficient foliage to give them a chance of wintering, and they are taking full advantage of the opportunity. *General Health.*—Colds and fever everywhere—due to the E. wind. It may be seasonable, but it is very unpleasant. *Labour.*—Paid off; local labour ample for what little work remains. *Interesting Items.*—The past has been the best season for snipe we have had for many years. Fires more numerous than I have ever seen them. The whole country lies under a pale of smoke: and this, with the heat and dry wind, makes existence the reverse of pleasant. Advance Jupiter Pluvius, and again I say advance.

Nilgiris. COONOOR, 22*nd March.*—*Weather.*—The cold spell we have been having lately has turned to very warm weather, the high winds dropping. Up to a week ago frost has occurred in cold localities near Coonoor,—most unusual for this time of year. *Crops.*—The coffee blossom out on the lower estates was a very good one, but unless rain falls soon a good deal will be lost. On higher estates only a quarter blossom or less has come out to date. The change in the weather is putting some heart into tea, though our March flushes are behind the average made up partly by February. *Labour.*—Labour is abundant and lots of maistries seem on the move. *Interesting Items.*—Progress on the Railway; small amount of work still to be done does not augur well for its alleged June opening. It is possible that the next century will see it running. *General Remarks.*—Measles rather rife among coolies, and health generally indifferent.

KULLAKAMBY, 24*th March.*—*Weather.*—Fierce sun and strong east wind continue, though at night there is a suggestion of rain in the air. Rainfall since January is, so far, only one and-a-half inches, though neighbouring estates have had over four inches. *Crops.*—Spike still good and healthy looking, and on most estates will hold out till the end of the month, when rain may be expected. *General Health.*—Good. *Interesting Items.*—The 23rd was the Telugu New Year's day, and most estates gave all hands a holiday—a fact which was loudly proclaimed by tom-toming and other hideous noises essential to the coolie when keeping a feast. Numerous scrub fires have occurred, and two estates had narrow escapes from damage to coffee trees.

WHY THE SOIL IS CULTIVATED.

As we explained in our last issue, the chief reasons for cultivating the soil are to control the conditions regulating its moisture, and to enable plant roots to freely extend t growth in all suitable directions. In continuing our di of Mr. Milton Whitney's article—Mr. Whitney is in the U Department of Agriculture, and his special branch is A cultural Soils—we have now to deal with the principle plowing. The practice of using plows for stirring and inv ing the top layers of the soil is as ancient as it is cheap. no means, however, can it be considered perfect. Trenchi and digging, if properly done, are immeasurably superior the thorough way they loose and aerate the soil. Continu ploughing at the same depth results in a "plow-pan," *i.e.*, soil gets compacted at a certain distance from the surf by the dragging action of the share. Hand-digging is f from this defect, as the soil is broken off and not slid What is known as "mamoty scraping," however, undou edly forms a pan, though only a surface one. Rain being able to penetrate the hard, smooth surface, rush violently off the soil and carries away with it the thin layer loose soil lying above the pan. Mr. Whitney, in alludi to the subject of wash, states that lightly plowed la washes very badly. Soil kept undisturbed washes ve little, while deeply-plowed soil will hardly wash at all. T reason is so simple that we cannot but wonder that plante do not generally accept it. The deeper a soil is cultivate the greater the proportion of water it can hold within pores.

Of the practical value of sub-soiling, little is definite known. As a general principle it may be laid down th sub-soiling is rarely necessary in light porous soil, or districts where light showers are frequent. It is n beneficial in heavy wet soils, unless they are previous thoroughly under-drained. If the subsoil is acid, it will a as a poison if brought to the surface in any quantity. C plantations, deep subsoil cultivation can be carried o easily enough without running the risk of any such dange Renovation pits, if dug at all, should be dug very shallo especially if the subsoil is poor and acid (the litmus pap test can be used to test this latter point). The bottom the pit should be then deeply forked. Continuous trenches they should also be shallow—would be still better; forki the bottom of the trenches is of course necessary. Needle to say, unless a thorough "wintering" is needed, su operations should be performed in the monsoon and the p or trenches partially filled in during the hot weather. in all deep cultivation, these operations eventually result the soil being able to retain a far greater percentage moisture, though its immediate effects are dessicatory.

Surface cultivation, on the other hand, should be performe either in dry, or during light showery, weather. T object is to form a mulch to stop the evaporation of wat drawn from the subsoil stores. During active growt

ep cultivation is a great mistake, as it injures the feeding tlets. It will be of interest to coffee-planters to learn t light cultivation, if continued too long, will injure the p by retaining too much moisture within the soil, delaying the ripening. This of course refers to grain crops. With it, the injurious effects of a long drought in early cropne are well known.

Under-drainage, while drawing off excessive moisture om the soil, allows the soil to retain the maximum of oisture conducible with health to the plant. Water, as ch, does no harm to most plants even if their roots are mersed in it. But it is essential that such water must be pt perfectly aerated. Centuries ago, the Romans used plant their irrigated crops on very high ridges, so as to low them all the moisture they could possibly need, while moving all danger of the soil or water becoming sour round ne plant roots.

Coffee irrigationists should keep this danger well in mind. ile drainage is, of course, the most effectual of all styles of rainage, but its cost is great. Stiff clay soils are naturally ost benefited by under-drainage.

From under-drainage we naturally turn to irrigation. It a great mistake to suppose that the artificial application f water to crops should be confined to arid regions, which, vithout such extraneous aid, would remain absolutely barren. rrigation is successfully adopted in countries whose rainall, though ample in its total quantity, is irregular and not o be depended on.

"The object of all cultivation, in its broadest aspect, is o maintain, under existing climatic conditions, uniform and dequate supplies of water and air in soils, adapted to ifferent classes of plants. This is the object alike of lowing, subsoiling, cultivation, under-drainage and irrigaion; they are all processes to be used in maintaining suitable oisture conditions for the growth of crops."

NOTES.

Liberian in South Travancore.

From one thing or another, the great hopes once entertained of Liberian coffee in South Travancore lo not seem to have been well grounded. We hear from a correspondent that most young clearings of this variety are being abandoned.

Wara fibre.

Planters having poor land near the sea level might do worse than put it down to Wara fibre (*Calatropis gigantea*), writes the *Produce World*. Samples of this fibre placed on the London market have been ranked with the finest rhea and valued at £36 to £38 per ton. It does well on poor and low soil.

The Kaiser as Coffee Planter.

According to the *Figaro*, says the *H. & C. Mail*, the German Emperor has recently acquired a coffee plantation in a German settlement in East Africa. With him are three associates; it is to be worked jointly as a commercial enterprise, and the Kaiser has full confidence in the success of the scheme.

How the Rupee affects Ceylon.

The prospects of a continued high exchange are having their inevitable results in Ceylon. Accordingly the question of abandoning tea yielding under 300—350 lbs. per acre is under serious discussion. It is computed that a loss of ten million rupees was inflicted on the Island tea industry last year by the rise in exchange. A 1*s.* 4*d.* rupee for the whole of 1898 will all but ruin the whole producing industry of India and Ceylon.

"A rose by any other name."

It is always gratifying to us to find that the public benefited by the pabulum provided in these columns is by no means confined to the readers of our journal. So highly, indeed, do certain of our contemporaries appreciate our efforts, that they have fallen, unconsciously of course, into the habit of presenting *verbatim* extracts from our pages to their readers as their own. Can flattery go further? And yet we are misguided enough to imagine that the simple affix of our name to those choice extracts would render to them a savour they do lack at present, to our nostrils at least.

The Kangra green tea trade.

The green tea trade of the Kangra Valley has fallen on evil days, and efforts are now being made to resuscitate the industry. Local prices for green tea are as low as 7 as. per *hatti* of 4 lbs., while in Central Asia the same article is retailed at Rs. 7 the *hatti*. The great need is of course a good and safe trade route to tap the Central Asian markets. Local planters have commenced their plan of campaign, the first steps of which are to do all they can to urge upon Government to direct their officials to protect and push in British trade in the regions under notice. One of the features of the movement is the hearty co-operation between European and Native planters.

Tea in 1898.

The *Indian Planters' Gazette* views the prospect for the current year with none too sanguine a view. Last season's outturn was considerably under the first estimate, but with the 18 to 20 thousand acres coming into partial bearing, prospects are not bright. It is possible, nay probable, we think ourselves, that picking will tend to become finer than ever, which will help substantially to keep the yield from becoming altogether too large. To secure the new markets, of which everyone is talking, our contemporary shrewdly remarks that the present capital allowed for the purpose is far too small. And in fact, it adds with exaggerated feeling, if the money cannot be raised in London, all idea of pushing the trade should be abandoned.

Croton tiglium.

The seeds of the *Croton tiglium*, says the *Produce World*, a plant which grows wild all over Lower and Eastern Bengal, are now in large request and are sold at £1 per 1,000, and larger quantities at reduced rates. The present demand for them,

however, appears to be a trade secret so far, says our contemporary, but we believe that the seeds are used almost exclusively for the preparation of the extremely powerful purgative, croton oil to wit. The plant will grow and thrive on any soil, no matter what the quality of it, and there is no reason why its cultivation should not be introduced on abandoned portions of plantations. The seeds are known to be of a very unctuous nature, and there would consequently be considerable loss in weight in transit to foreign markets due to fermentation. The tree will grow from the sea level to an elevation of 3,000 feet and even over. Once a week a cooly shakes the tree and picks up from the ground what has fallen off, puts the pods in the sun, shells them, and gives another drying, which is all that is required. A net profit of about one shilling per tree per annum has been realized from full-grown trees.

Indian Teas. There is a steady demand, and as the supply continues moderate, prices show no material change for the lower grades, while an upward tendency is marked in the better descriptions. For the latter there was active bidding at firm to advanced rates, and in some cases a rise of ½*d.* to 1*d.* was established in the finest qualities. There is every prospect of a very firm market for fine teas giving a strong infusion, as the quantity on offer is getting into a limited compass, and judging from recent reports there is not likely to be any important addition to the stock. All useful medium kinds met with a fairly active inquiry, and are more difficult to obtain at prices ruling two or three weeks ago, the stronger position being no doubt due to the disposition of buyers to secure a good working stock at present prices. It appears almost certain that there will not be more of this class of tea than the trade can conveniently absorb, and for this reason it is expected that the market will be stronger later on. Although no appreciable change in the values of the lower sorts has taken place, prices have been somewhat irregular, and in some cases in buyer's favour. The public sales comprised 32,923 packages and 3,191 were withdrawn.

Mexico. The *Ceylon Observer* writes thus :—

"One result of the establishment of an artificial, dishonest rupee in India and Ceylon has, undoubtedly, been to send capitalists hitherto interested in the East, to seek investments in 'silver' countries of the Far West. Messrs. H. K. Rutherford, G. A. Talbot, and other gentlemen well known in Ceylon have given attention to Brazil and invested freely in extensive coffee property there. Mr. Huntly Thring, Mr. J. L. Shand, Mr. R. P. Macfarlane and others have made an investment in Costa Rica; and now an influential Syndicate of Ceylon men have—according to our London correspondent—completed the purchase of coffee property in Mexico. It is well that these facts, and many more similar to them, should be brought under the notice of Mr. Chamberlain and Lord George Hamilton to give them some idea of what India and Ceylon have lost, and are losing, through the transfer of capital and planting enterprise to America, which would surely have been given to the East had the currency not been tampered with."

Of all American lands Mexico seems to offer the brightest prospects to investors,—a firm and just administration, unparalleled in the South American Republics, great and extending railway lines, excellent climate, vast areas of splendid land *and a silver currency*. In 1895 the population was 13 millions, 19 per cent. being pure white, 43 per cent. mixed, and 58 per cent. of Indian race. The exports of co and cacao are steadily increasing; in 1894-95 coffee expo surpassed 300,000 cwt. Almost every conceivable tropi and sub-tropical product grows luxuriantly, while the pr imity of American and European markets gives the produ an immense advantage over his more remote rivals.

Coffee in Queensland. Despite the occasional reports the spread of coffee cultivation Queensland, the progress there is excessively slow. Far ers hold that it will be impossible to compete with the che labour countries, though if Brazil is considered, with its a-day Spanish and Italian labour, such fears may be held be groundless. Providing of course that, soil and clima being favourable, nothing is attempted in the way of toppi and its resultant increase in work. We would advise c Queensland readers to attempt nothing more, for the prese at least, than growing coffee *au naturél*, which, bei interpreted for their benefit, means planting out, after thorough plowing, the young plants at about 12 feet apa each way. This will allow space for horse cultivators to run between the rows, and will obviate expensive han weeding and digging. The plantation should be thorough protected from high winds. The kind of shade suitable the locality must be ascertained from experience. If t first or maiden blossom is heavy, the labour expended stripping it off, and thus sacrificing the first crop for t future benefit of the tree, will be found well worth t expenditure. No topping should be attempted, and t trees must be allowed to grow to their natural height so 15 feet or less. The beans will of course tend to be inferi to those from topped and pruned coffee, but in the loc retail market the differences will not be found very extren The cost of picking will be the only serious expense, a will vary in inverse ratio to the crop on the trees.

The London Market. The market has again settled dov into a very quiet state, writes t *Produce Markets Review* of the 26th ult., the continu heavy receipts in Brazil having acted adversely in t terminal market, where prices have drooped, though on to the extent of 6*d.* to 9*d.* per cwt. At auction there h again been a good demand for all fine qualities. Ea India has sold at a slight advance for the few good parc

COFFEE SHADE TREE.

Sun-dried Erythrina Lithosperma loppings, &c., contain p ton :—

61·50	lbs.	Nitrogen.
57·38	„	Potash.
14·92	„	Lime.
13·68	„	Phosphoric Acid.

Seed cured under Messrs. Sutton and Sons' advice.

Orders should be booked early for the coming crop of seed fr the parent trees of above analysis at Rs.6 per pound containi about 2,000 seeds. *Germination guaranteed.*

Only thornless variety extant, and is not procurable anywhere sa from the

MANAGER, ARIENKOW ESTATE,

Shencottah

ered, but the medium and common kinds are rather ver. The few lots of Plantation Ceylon have sold well relatively high rates. Larger arrivals of Costa Rica are orted, but much of the coffee having been shipped in parchment has to be cleaned, and will not be ready til next week. The few lots offered have sold well, ough hardly at the very extreme prices obtainable cently. Of other kinds, Colombian has sold irregularly, ile Jamaica, mostly of very common quality, has sold a decline.

LONDON COFFEE RETURNS.

—	HOME CONSUMPTION.		EXPORT.		STOCK.	
	1898	1897	1898	1897	1898	1897
For the week ended Feb. 19, 1898.	Tons. 291	Tons. 271	Tons. 429	Tons. 188	Tons. 9,957	Tons. 7,838
For the 7 weeks ended Feb. 19, 1898.	1,958	1,894	2,553	1,618	—	—

offee prospects in Hawaii.

With the prospect of the 1*s.* 4*d.* rupee becoming a permanency, it is as well for capitalists to turn their ttention to other countries for the scene of their labours. Hawaii has of late attracted considerable attention as a coffee country, and the British Consular's estimates of the cost of cultivation, &c., will be found interesting. They include the purchase of 100 acres of Government land at 10 dollars (say £2) per acre :—

	Dollars.
Outlay, 1st year	6,955
„ 2nd year	3,080
„ 3rd year	5,070
	15,105
By 20,000lb. (below 2 cwt. per acre) of coffee at 18 cwt.	3,600
	11,505
Outlay, 4th year	6,220
	17,725
By 60,000 lb. coffee	10,800
	6,925
Outlay, 5th year	7,570
	14,495
By 85,000 lb. coffee	15,800
Credit at the end of 5 years ...	805

We then get an outlay in the sixth year of 8,820 dollars and a credit of 100,000 lb. of coffee equal to 18,000 dollars, and in the seventh year the crop is 125,000 lb. against the following outlay :—

	Dollars.
Manager's salary	1,200
Labour, 12 Japanese	2,160
Picking, pulping, and drying 125,000 lb. of coffee, at 4 c.	5,000
Hulling, polishing, and grading 125,000 lb., at 1 c. ...	1,250
Sundries, bags, freight, etc.	1,200
	10,810

The result after seven years is a balance to credit of 21,675 dollars (not counting interest), and of course a valuable property

To break up hailstones.

In alluding to the great damage done by hailstones to crops generally, the *P.L.G.* turns the attention of its readers to the use of aerial explosions of dynamite to break up the hail formation and convert it to beneficial rain. Experiments to cause rain, from apparently cloudless skies, have not altogether proved successful, but the effects produced have led scientists to devote attention to the disruption of passing clouds; not only have these bodies of vapour been arrested, but the moisture they contained has been precipitated on the earth immediately below the point of disruption, and from this the operators adduce the possibility of splitting up a hail cloud ere its particles assume the character of ice, thus depriving it of its destructive properties, either by causing its precipitation in the shape of simple rain, or, at the most, so reducing the size of the "stones" as to render them next to harmless. The experiments were carried out near Malaga, in Southern Spain, by means of parcels of dynamite attached to small balloons, sent up as the storm clouds gathered, the wire which held the balloon captive being connected with the explosive and also with a battery on *terra firma;* the result was that over a space of several square miles, to which the effects of the explosion extended, the vines received merely a drenching shower, others, lying beyond range, suffering in the usual manner from the hail. The cost of the apparatus—wire, balloon, battery and explosive, if compared with the value of the flush that would be saved—would be small enough; but as every planter knows, it is not so much the loss of a single flush but the after-effects of a "cutting up" that throws a garden's outturn back. The method of manipulation of the battery, etc., could, we presume, be soon learnt, and surely the diminished yield that hail causes, for sometimes a couple of months, or, we may say, for the whole season, should induce planters to study this important matter. Day by day science brings forward some means of counteracting the destructive power of natural phenomena, and it behoves all interested to avail themselves of these.

The opening up of China and the Tea Trade.

China is to be opened up to the trade of the world. Its splendid waterways are to be free to British and other steamers next June, and the collection of the "likin," or internal customs, will, it is said, in connection with the new loan, says the *Home and Colonial Mail,* come under the control of the Inspector-General of Maritime Customs, who, so long as British trade with China at the ports continues to exceed that of any other Power, will be a British subject. Every effort will, therefore, be made to develop the trade of China, especially that of tea. In 1896 the gross amount of Chinese trade was 343 millions of Haikwan taels, about six of which go to the pound sterling. In round figures Great Britain, India, and our Colonies secured £40,000,000 of trade, as compared with £17,500,000 which went to the rest of the world. Great Britain direct figured for rather more than one-fifth of the £40,000,000; but Hong Kong, which is a British colony, had a total trade with China of £24,000,000, and India a turnover of more than £4,000,000. Our principal foreign competitors were Japan, Europe (except Russia), and the United States, each of which do a trade with China slightly exceeding; or in the case of America a little below, the Indian total. Russia's share amounts to something under £3,000,000 per annum.

To this country China exported tea valued at £1,120,000 in 1896; silk, about £480,000; skins and furs of all kinds, £450,000; and straw for plaiting purposes, £350,000. The total quality and value of the tea exported showed a decline on each of the seven years preceding 1876, and this year it will probably show a still further decline, but the year 1899 may mark a new era in the tea trade of China. Not only are the Chinese determined, if possible, to make a supreme effort to increase its volume, but they will receive the support of the authorities and of all who are interested in the expansion of the trade of China. The planters of India and Ceylon, who have won their present position in the tea markets of the world by their own push and energy, will still have to fight to retain their supremacy. They have never received any favour from official sources, and they are not likely to receive any now. They will have to contend with keener opposition than they have yet experienced from tea growers in China and Japan, but we do not doubt that they will prove equal to the occasion. If China is to buy our goods in much larger quantities, as British manufacturers hope and expect, she must produce something in larger quantities to sell to us. As the Chinese will do their best to increase the output of tea and the demand for it in the West, their competitors in India and Ceylon will, therefore, be fully occupied in meeting this competition. Never was there a time in the history of the tea trade where economic methods and the employment of the best resources of enterprise and machinery were more needed.

LETTERS TO THE EDITOR.

SOME LEGUME QUERIES.

Sir,—I shall be glad if you or any of your readers could tell me where is the best place to get the seed of the "White Mustard," also how much it would take to do an acre of coffee with it and what price it is.

I tried gram (koolty) last monsoon with, I think, good results, and would like to try white mustard if not too expensive.

Can you tell me what the "Moth" or "Math" is which the Editor of the *Field* recommends, also its Hindustani name or Canarese name.

I enclose you an article which a brother planter had sent him from home, and which you see was copied from the *Journal of the Royal Agricultural Society of England*, and I take the liberty of forwarding it to you (my brother planter having since gone home, but previously giving me leave to do so), and in case of your not having seen it before may think it of sufficient interest to insert in your paper. Any correspondence which might arise from your doing so might be interesting and of value.

E. N. Leslie.

Kulsapore Estate, Koppa,
Kadure District, Mysore,
18*th March* 1898.

[We shall read the article in question, but fear that, owing to the leguminous question having been so exhaustively discussed during the last two years in these columns, there will be little new to cull from it.—Ed.]

DOMESTIC OCCURRENCE.

Birth.

Norman.—On the 15th March, at Lansdowne Cottage, Ootacamund, the wife of R. deR. Norman, of a son.

GENERAL ARTICLES.

CULTIVATION OF PARA RUBBER.

Para rubber (*Hevea braziliensis*) is now generally rec nised as the most profitable variety to cultivate. T greatest disadvantage entailed in its culture lies in elevation and situation of the soil required, *i.e.*, low lyi deep, damp lands. Some 200,000 plants from 1 to years are growing in various parts of Ceylon; th represent a total area of about 750 acres. Mr. Wil Director of the Royal Botanic Gardens of Ceylon, writes

Cultivation.

Hevea forms a moderately tall tree, not very much branched. begins to flower at about six years' old, but for planting purpo the seed of more mature trees (twelve or more years old) is prefera

About February, in Ceylon, the leaves mostly turn brown a drop off, and the flowers soon afterwards appear. They are follow by large woody fruits, each containing three seeds, which ripen July and August. The fruits open explosively, usually in the l part of the day and scatter the seeds to some distance. The seed very large, weighing about half an ounce. It has a hard seed c and the interior substance is very oily.

The seed soon loses its power of germination and ought to sown within a week of its falling from the tree. If it has to be s on a voyage of more than a week, it should be very carefully pack in charcoal. Even thus, however, the majority of seeds soon d and the only satisfactory way of sending seeds to distant countr is to plant them in soil in a Wardian case and allow them to gr on the way.

The germination of the seed is very rapid, and a long tap root soon produced. The seed should be sown about an inch deep well-prepared soil, in nurseries, or, if preferred, in bamboo pots baskets. They should be kept shaded and watered, and when t young plants are from 18 in. to 24 in. high, they may be plant out. Good results are also obtained by stumping, the plants bei allowed to grow about 3 ft. bigh, then taken up, and the main r cut across about a foot below the ground; but the method of pla ing out the smaller seedlings is perhaps preferable.

The plant may also be propagated by cuttings. The meth employed in the Botanic Gardens has usually been to take cuttin near the ends of the branches, but further back than any of t leaves. Each cutting is about a foot long, and as thick as a le pencil, and is cut off at both ends by oblique cuts made just bel leaf scars. The cuttings are planted in nurseries in wet ear This method is somewhat precarious; sometimes nearly all the cuttin grow, at other times only a small proportion.

The seedlings, stumps, or cuttings should be planted out duri rainy weather in prepared places. Holes should be dug as in t case of cacao, and filled with good soil. A little manure will oft be advantageous. The young plants require to be lightly shad for a time until they are established, and probably for the first t or three years they will grow the better for a certain amount shade, such as would be given by narrow belts of trees runni through the plantation. These belts should be arranged to act

PLANTING BOOKS.

Map of Ceylon Tea Estates Rs.9; colored Rs.10; Mounted in case Rs. 1

Map of Ceylon Plantations, Plain Rs.8. Inga Va, Rs.2-8. Areca Pal As.12. Cocoanut Planter's Manual, Rs.4-10. Ceylon Manual of Chemi Analyses, Rs.3-10. Tobacco Cultivation, Rs.3-10. India Rubber (now the Press). Coffee Planter's Manual (now in the Press). All about Spic Rs.3-10. Coffee Tree and its Enemies, Rs.1-8. All about Grub, Rs.1 Brazil as a Coffee Country, Rs.1-8. Cardamoms, Re.1. Ceylon Coff Soils and Manures, Rs.1-9. All about Aloe and Ramie Fibre, Re.1. Esta Buildings, Rs.4-4. Coffee and Chicory, Rs.1-13. Coffee Cultivation Ceylon, As.5. Tea Cultivation and Manufacture, As.5. Tea Cultivation Ceylon, As.6. Tea at high elevations in Ceylon, As.3. Manuring of T Estates, As.8. To Economise Labour Supply, As.12. Planting, Pruning a Preparation of Tea, As.12. Salt for Agriculture, As.8. Cocoa, Cocaine a its Salt, Rs.2. On the Importance of Lining, As.4.

Apply "Observer Office,"
Colombo.

id belts, as the *Hevea* is easily injured by wind. By the time the es are about three years' old they will have grown up to a height about 25 ft. or 30 ft. and form their own shade.

Various distances apart have been tried in planting *Hevea*. The inger plantation at Henaratgoda Garden has the trees planted ft. apart. Their average girth is now about 30 in. and they re- re thinning. It will not do, however, to conclude from this, as is netimes, that the trees should be originally planted more than ft. apart. On the contrary, the best results have been obtained planting 8 or 10 ft. apart each way. The trees thus form their n shade and keep down weeds, and a process of natural selection the best trees goes on, and the more weakly and dwarfed trees y be gradually thinned out in subsequent years. Another vantage of close planting is that the trees grow up straight thout forming many branches low down, and this very greatly ilitates tapping.

Para rubber is a surface-feeding tree, and catch crops should not erefore be grown between the trees, which require all the nourish- ent that the soil can afford.

The young plants are greedily eaten by cattle, deer, hares, and ner animals, and require careful protection for about eighteen nths, after which time they are generally tall enough to require t little further protection.

Weeding is also required for the first year or two, but afterwards e trees form a dense shade under which but few weeds grow.

The comparatively superficial growth of the roots renders manur- g easy, and it would probably be found advantageous in poor or ndy soils.

TERRACING AND DRAINING.

A DISCUSSION has been going on in your columns lately *nent* the advantages of terracing as compared with drain- ng. I am not satisfied that by making terraces, drains can e dispensed with. On the contrary, it appears to me that, where terraces are made, drains become an absolute neces- ity, otherwise wash and "scouring" would be tremendous, or in a heavy downpour of rain the water is bound to ac- umulate rapidly on the surface of the terraces, there being o outlet for it below, and no one need be told of the result hen that happens.

It is the experience of most planters that wash is greatest here water accumulating on roads and building sites, and ot being provided with the means of running away harm- essly into the ravines, rushes down the slopes. If the erraces were made at a gradient, they would act as drains; nd only imagine what the result of that would be? Why, ons upon tons of the best soil would be swept away, never o be replaced. What is required to reduce wash to a mini- mum is to make the soil absorbent to as great a degree as possible, and this cannot be done by mere digging: *subsoil* drains must also be provided. Make terraces by all means, too, if funds permit, but put in deep drains also, otherwise, I am afraid, the object of making terraces would be defeated. Covered drains would be the most advantageous if feasible, as in the case of deep open drains the sides are apt to cave in and block them; and besides that, they are a means of carrying some valuable soil away. The objection to covered drains is the certainty that they will get stopped up by the roots of the shade trees.

I will endeavour in this paper to show how covered drains *plus* terraces are feasible; but let me state at the outset that my plan can only be carried out in opening new land. First then as regards the terraces: I think they should be made as nearly parallel as possible to one another, and should run at a slight gradient down towards the ravines, or, where there are no ravines, to main drains, which should be provided. To effect both, it is necessary to bring the road or ghaut tracer into requisition. Start at the top tracing down at an easy gradient across the face of the hill and peg the trace out. The next trace start exactly 5ft. from the first peg. This distance, perhaps, wouldn't be maintained all along between the two traces; small tongues or "promontories" of land pitting out might perhaps throw the lower trace further out, but it wouldn't be much, and the terraces at these spots might be widened to receive two plants instead of one. Now, I don't propose that the terraces should be cut like dug-out roads, and then that they should be drained like roads and finally that pits should be dug in them to receive the plants. All this would be too costly. The plan I would propose—and I think it will strike your planting readers as exceedingly simple and quite within the bounds of practical planting—is simply this:—

After tracing the terraces and pegging them out, set coolies to work, commencing at the top of the hill, to cut drains 2ft. wide × 1½ deep on the lower side inside the pegs along the whole course of the terraces and opening into ravines or main drains. The soil excavated from the drain should be carefully piled upon the lower side like a protecting wall or bund. This will bring up the depth on the lower to about the same as it is on the upper side, viz., 2ft. The next thing to do is to fill the bottom of the trenches to the depth of a few inches with small stones where available in sufficient quantities, or, where they are not procurable, with dry sticks and twigs. Next fill up the trenches with soil, and in doing so have the ground above cut into so as to get the formation of a step. Now bring the lining rope into requisition and have the pegs placed in the covered trenches to indicate where the plants are to be planted. The only objection to my plan is that the lines of coffee can only be got straight up and down the hills; but this is immaterial so long as one knows the land is planted with the right number of plants. But see what an im-

The Wynaad and the Planting Industry of Southern India, by FRANCIS FORD, Re. 1.

The Planting Directory of South India, Re. 1-8.

Tea Planting from Seed to Cup in Tamil, with English Translation. Re. 1.

Sketch History of the Planting History of Wynaad, by the late ADOLPHUS ARTHUR WRIGHT. Re. 1-8.

Science and Coffee, by the late MR. WM. PRINGLE, M.S.C.I., Re. 1-8.

Report of Observations of Injurious Insects and common Crop Pests during the year 1883, with methods of Prevention and Remedy, by Miss ELEANOR A. ORMEROD, F.R.Met.Soc., &c., Re. 1-8.

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mense saving there will be of soil; and note also that here is a way open out to us of practically killing three birds with one stone; for the necessity of making pits to receive the plants is dispensed with, and we have drains and terraces all made by one operation as it were. But the sticks and twigs would only serve to keep the drains open for a year perhaps, and then it would be necessary to make fresh drains on the inner sides of the terraces. These needn't be made wide; 9 inches at the outside would be enough, and they ought to be filled in the same way, that is with sticks and twigs at the bottom and soil above. This will not be costly as, if necessary, digging up the surfaces of the terraces can be dispensed with that season, and it would all go into "the day's work." Every succeeding season, if the drains are reopened—as they must be to keep them free of roots, &c.—after the rain has rendered the ground soft, the cost will not be great. In calculating cost, remember that a cooly can make 25 renovation pits, each measuring 3ft. × 2ft. × 1½, and don't forget that pits to receive the plants are dispensed with, and that digging may be dispensed with the first and second seasons, as the loose soil over the covered drains would keep absorbent for a good time without the aid of digging.

H. G. R.

DISTRICT ASSOCIATIONS.

SHEVAROY.

Proceedings of the Monthly Committee Meeting of the Shevaroy Planters' Association held in the Victoria Rooms, Yercaud, on Monday the 7th March 1898 at 1 P.M. Present:—Revd. J. M. Kempf, Mr. J. C. Large, Mr. C. G. Lechler (*Chairman*). Mr. C. Rahm, Revd. M. Andersen, Mr. R. Gompertz, (*Honorary Secretary.*)

1. *Read* application from G. Krishnasawmy Iyer and Daniel D'Rozario for employment as writers.

2. *Read* letter from Mr. A. G. Nicholson saying that he had about 17 tons muriate of potash more than he required, which he was willing to sell at cost price or Rs. 11-12 per cwt. at Salem station plus 2/8 per ton extra if delivered in pakcets of 56 to 80 lbs.

3. *Read* letter from Mr. King-Harman, enclosing a letter to the Postmaster-General, complaining against the Postmaster. *Resolved* that it be forwarded to the Postmaster-General for such action as he may consider necessary.

4. *Read* letter from the Secretary, U. P. A. S. I., stating that the scheme for entertaining an Agricultural Chemist must be abandoned. —*Recorded.*

5. *Read* letter from the Secretary, U. P. A. S. I., enclosing copy of a letter from the Chairman to the Secretary to Government of India *re* currency question. *Resolved* that the Honorary Secretary S. P. A., be requested to address the Secretary, U. P. A. S. I., with reference to re-opening of the mints, suggesting that the Chairman of the U. P. A. S. I., be requested to lay the matter before all the large producers in India by a printed circular letter and to solicit their co-operation and assistance for the proper representation of their grievances and ours by means of a deputation of planters and other producers (many of whom are now residing in England) to the Secretary of State for India.

6. *Read* Collector's letter No. $\frac{309}{\text{L.F.}}$ of 26th ultimo saying that the Revd. M. Andersen had not been appointed a Member of the Taluk Board as it was too much to expect that a Member on the Shevaroys should attend meetings at Salem twice in a month. *Resolved* that the Honorary Secretary be requested to inform the Collector that as the Rev. M. Andersen is perfectly willing to attend meetings a month in Salem, as his duties constantly take him to th country, the Association hopes he will reconsider his decisio appoint Mr. Andersen a Member of the Taluk as well as the Di Board.

7. *Read* Proceedings of the District Board, dated 25th u regretting that it could not sanction any expenditure on impr the road to Killyoor.—*Recorded.*

ROBERT GOMPERTZ, *Honorary Secre*
C. G. LECHLER, *Chairman.*

SOUTH MYSORE PLANTERS' ASSOCIATION.

The Annual General Meeting was held in Belur on 3rd M Present:—Messrs. J. Aird, R. A. Anderson, H. P. Cobb, J. Crawford, W. L. Crawford, W. M. Daly, F. M. Hamilton, Hamilton (*President*), J. A. Harris, (*Hony. Secy.*) C. Lake, L. S. Sladden, J. L. Stewart, M. J. Woodbridge, and A. Nich (*Visitor*).

The notice calling the meeting was read, the proceedings o last General Meeting confirmed, and the Honorary Secretary's re as detailed below, was taken as read:—

ANNUAL REPORT, 1897-98.

Gentlemen,—In placing this report in your hands, it is with ex regret that I have to record that crops have, with few exceptions, little if any better than last year. I am happy to state, however, that disease has not been prevalent to any extent, and the season so far h been more normal than was the case the last two years, prospects be said to be favourable.

Report of the S. I. P. E. C.—No intimation has yet been received Government. No doubt more urgent matters have delayed its rece consideration.

U. P. A. S. I.—A full report of the business of the year and o general meeting appears in the Book of Proceedings. A new feature the proposed allotment of funds to scientific investigation. I regr say, however, that the scheme for the employment of an **Agricult Chemist** has practically fallen through for want of support. Th the more to be regretted, as from enquiries made it appears tha project would not have involved so large an expenditure as was a pated, and had only three or four Associations come forward with offe help, it might have been carried through. The North Mysore Associ at the Dusserah urged the Durbar to engage an Agricultural Chemi attend to the requirements of the whole province. The proposal favourably received, and I believe they are making enquiries regardin engagement of a suitable man.

The Currency Question.—The persistent efforts of the Governm of India to bolster up the value of the rupee to nearly double its intr worth is a source of great anxiety to producers. The new gold Note and the remarks of the Finance Minister, show plainly their determin to keep up the rate of exchange, and indicate the possible introduc later on of a gold standard. With regard to the U.P.A. proposed cir letter, this Association, while it agreed that it was advisable to hold sultation with the Chambers of Commerce, Banks and other Merca institutions, deprecated the adoption of a definite policy and recour any action until the views of such bodies were ascertained.

Roads and Communications.—*Railways.*—The projected Rail from Arsikerri to the West Coast is still under the contemplation of Durbar, who are carefully investigating the best and most econom method by which the descent of the ghaut may be accomplished. *Roa* I have much pleasure in expressing appreciation of the work don the Executive Engineers and Messrs. Rice and Davy, which has resu generally speaking, in a marked improvement in the roads throug the Mulnaad. It is noticeable, however, that while greater attenti being paid to minor roads, some of the main routes, for instance Hassa Chickmaglur and Banawar to Belur, are falling into a state of disre It is satisfactory to note that soundings are being taken for the A bridge, and that operations are expected to be put in hand after the mons The Bage-Belur road, tenders for the repair of which were invited s months ago, is, I hear, still *in statu quo*, but I have reason to believ will be thoroughly put in order before the rains. The abandonment of work at the Chickanhully end of the Chickan-hully-Saklaspur road is to severe criticism. The D. P. W. fully recognise the utility of the r but owing to a few landholders, through whose property the trace pa having demanded exorbitant compensation, work has been stopped,

MILLIE & REDMOND, late P. THOMPSON & CO., *Ootacamund, Engineers and Contractors.*

e expenditure of several thousands of rupees rendered useless. I have ged the matter being settled promptly by arbitration and a speedy re-mption of the work.

Post Office.—I have heard frequent complaints regarding the loss of ters, parcels, &c., and have laid specific cases before the authorities, but no instance were the missing articles found.

Police.—I am glad to notice that Government have raised the pay of ffadars, but judging by the class of men that are attracted to the force, fear that the remuneration of all grades is insufficient. My attention has en drawn to the neglect on the part of the Police to visit the coffee tates during the picking seasons, and my complaints to those in authority ve not always been taken notice of. No coffee-stealing cases have been ported to me, but there is no doubt that petty pilfering is as rife as ever.

Cardamoms.—The crop this season has been better than last, but rices are now lower. I have expressed our thanks to Government for ttling the re-assessment question.

Epidemics.—I rejoice that the plague has so far not reached this province, id trust we may escape it. I have drawn the attention of the Civil urgeon to the outbreaks of cholera in the Mulnaad, which now appear o occur annually, and suggested an addition to the staff of Hospital Assis-nts at times when the epidemic may be expected, the establishment of few more dispensaries, and an assured supply of the necessary medicines.

Labour has again been plentiful, and is, I think, likely to be so during he coming year; the scale of advances has already been reduced, and I hink a combined effort should be made to lower the rate of wages.

Sanderson Memorial Ward was opened in September last by the Deputy Commissioner of Kadur, and is now ready to receive patients.

Members.—Messrs. Egerton, E. P. Lake, Limouzin and Playford have eft, and Messrs. Gowans, Taylor and H. G. Harris have joined the Association, so our numbers are one less than last year.

Local Officials.—A constant shuffling of the minor officials, though possibly a desirable policy, causes great inconvenience, especially when in he case of amildars the incoming magistrate is not invested with 2nd class powers. Long periods not infrequently elapse before such powers are given, which might very easily be curtailed. I hear Kalsa is to be taken out of the Mudigiri taluk, and a new taluk formed with headquarters at Balehonnur. This will be a great relief to the Mudigiri officials.

Chaplain for the Planting Districts.—I beg to draw your attention to a letter I received from the Bishop of Madras, and request you will give the matter your careful consideration.

Funds.—It will be remembered that at our last meeting we agreed upon a sliding tonnage assessment as a means of raising the funds we require, which unless we pass a new rule will be in force the coming year. I myself, having in view the two past seasons, have reluctantly come to the conclusion that a crop assessment is too precarious a method on which to depend for income, and I can see no other course than to adhere to an acreage assessment. The income we derive from the acreage assessment that was in force last year may be computed as follows :—

	Rs.
12 as. per 10 acre on 6,000 acres	450
Add 45 members at Rs. 10 per head subscription ...	450
Total income ...	900
I reckon ordinary annual expenditure at	550
which leaves a balance of estimated income over expenditure of	350

out of which the U. P. A. subscription has to be paid.

The U.P.A. subscription is now assessed at a minimum of one anna per acre on a quarter of the cultivated area represented by members of the District Associations, and a maximum of one anna per acre on total area. Our total cultivated area (including cardamoms) is 17,500 acres, so that in round numbers the minimum we can pay is Rs. 275 and the maximum Rs. 1,1.00 I take it that we would like to pay something between these two. I propose, therefore, that we annul the crop assessment rule passed last year, that we continue the acreage assessment at 12 as. per 10 acre cultivated, and that we pay the U. P. A. Rs. 400, which will entitle us to 40 votes. When all 1897-98 subscriptions are paid, I expect to have a balance in hand of about Rs. 600. I have already paid the U. P. A. Rs. 100, and if we pay as I propse Rs. 300 more, we should have a balance in hand of Rs. 3 to carry forward.

Accounts are on the table, and show a balance in hand of Rs. 442-13-0. I greatly regretted to notice that the health of the Dewan had necessitated his going away for change, and trust he has returned so thoroughly restored that he will be able for many years to conduct the affairs of the State with his accustomed vigour and judgment. In conclusion, I will briefly refer to the lamented deaths of Mr. W. A. Allardice and Mr. D. T. Brett. The former was for several years President of the Parent Planters' Association of Mysore and the latter of the North Mysore Association. Both were highly respected, and their deaths are deplored by all Europeans in the planting districts of Mysore. Placing the resignation of my office in your hands,

I remain, Gentlemen, Your most obedient servant,

J. A. HARRIS, *Hony. Secretary.*

Leaf Disease.—Mr. J. L. Stewart spoke as follows: "Gentlemen, I have an explanation to ask for and a few words to say about a very injudicious and pessimistic speech made by one of our delegates, Mr. Harris, at the U. P. A. Meeting last year. This speech has caused an unnecessary small panic among agents, and consequently been the cause of much trouble and annoyance to men who depend on agents for money to work their estates. I use the word unnecessary advisedly, as after nearly twenty years' experience of coffee, I can honestly say that I consider that leaf-disease is no more virulent now than it was when I first came out to this country. Leaf-disease is a bogey very easily exorcised, and is made practically harmless by liberal manuring and cultivation. So long as a man does his estate well, he need never fear leaf-disease, but we cannot fight against providence, and I put down the last two years' bad crops entirely to the seasons; both the last two seem to have gone wrong altogether. If Mr. Harris had confined his remarks to this, the real reason of short crops, no harm would have been done. I think now we may congratulate ourselves, as I have never seen coffee looking better, nor with a better promise than it has this year. I will now ask Mr. Harris on what grounds he made the injudicious and alarmist speech referred to; and why he persisted that leaf-disease was going to ruin us in the face of reassuring statements made by other delegates."

Mr. Harris replied: "Gentlemen, I find it hard to believe in the sincerity of Mr. Stewart's remarks. If he considered that my speech would have such deleterious effects as he has described, why did he not at once denounce it? instead of waiting six months when the mischief, if any, would be done. If he believed in the opinions he has expressed, I say it was his bounden duty to the planting community to publish them far and wide. His not having done so leads me to suppose that his motives now are not serious but frivolous. As, however, there may be some who may consider that my description of the coffee industry was too severe, I would like to address a few remarks to the meeting. I will read the sentences which contain the description referred to: 'The coffee industry, at all events as regards the province of Mysore, is in my opinion, at the present time, passing through a crisis. Few of us are working virgin land, and the distinctly increased debility of our trees, both young and old, manifested by their less successful contention with leaf-disease, seems to indicate exhaustion of soil.' In the first place I would like to express my sincere regret if any member of the planting community has experienced inconvenience through a certain unexpected notoriety having been given to my speech, but I would ask you to remember that the ill-effects of leaf-disease will be found out in 'the Lane' and elsewhere without such adventitious aid as a speech at the U. P. A. Meeting; short crops, light and inferior beans tell their own tale. In the second place I assert, and I assert emphatically, that the words quoted above were in no manner too strong, and I maintain that they were in no degree injudicious, for I feel assured that the temporary inconvenience which some may have experienced (and which they would have experienced whether my speech had been made or not) is a small matter compared with the good that would have resulted had the scheme of employing an Agricultural Chemist been carried out. When I made my speech in Bangalore, we had just emerged from the worst attack of leaf-disease that has probably ever been experienced, which to my mind, as I said then, seemed to indicate exhaustion of soil. This by no means implied, as seems to have been interpreted by Mr. Stewart and others, that the soil was played out, that the industry was doomed! but merely that it required tonics, just as a man does after sickness, to restore it. The severity of the disease made the moment opportune for suggesting remedies. I hoped that the debate in Bangalore would elucidate matters, and that a scheme would be evolved that would permanently benefit us. This scheme has temporarily fallen through, but the discussion that took place is bearing fruit. A group of Nilgiri planters have, I hear, engaged a chemist on their own account, the Mysore Government are favourably contemplating a proposal to engage one to work in this province, and last, but not least, the attention of the whole planting community has been concentrated on the subject. So far then from my speech having been injudicious and pessimistic, as described by Mr. Stewart, I maintain that it was the

humble means of producing a most interesting discussion at the Conference in Bangalore, which I firmly believe will result in more enlightened methods of cultivation, and, mark you, a consequently increased credit in the coffee industry. I assure you, gentlemen, that I have the interests of the whole planting community at heart, and it would be a sincere grief to me were I to cause any injury to our undertakings. I believe myself that by judicious manuring and careful cultivation we shall successfully contend with the ravages of leaf-disease. We have two things in our favour as compared with Ceylon, a climate subject to long droughts, and a certain isolation as regards the position of our estates. The present season bears out this opinion: leaf-disease has been present in a very mild form, and prospects may be said to be decidedly favourable." The discussion then closed.

Roads and Communications.—Mr. Woodbridge proposed, and Mr. Daly seconded, "that steps be taken to insure proper arrangements being made for the ferry service at the Anjur crossing, and to put the approaches in order before the monsoon." Carried.

Messrs. Stewart, Cobb and Woodbridge testified to the frequent loss of articles in the Post Office and to the futility of laying complaints before the authorities. The following resolution was proposed and carried: "That this Association regrets that no serious notice is taken by the superior officials of the department of complaints laid against their subordinates, and is of opinion that many of the losses and irregularities which cause so much annoyance are due to the employment of incompetent and underpaid men, especially in the minor offices. This was carried unanimously.

Police.—Mr. Cobb expressed approval of the Honorary Secretary's remarks under this heading, and proposed a resolution to this effect, which was seconded by Mr. Woodbridge and carried.

Epidemics.—Mr. Stewart proposed, and Mr. J. G. H. Crawford seconded, "that as a temporary measure, till more dispensaries are established, that Government be asked to appoint Sub-Assistant Surgeons to visit certain localities at times when outbreaks of cholera may be expected; and that the Hon. Sec. intimate to the Senior Surgeon that some members of the Association will be willing to give such officers house-room for themselves and safe storage for medicines." Carried.

Mr. J. G. Hamilton having enquired whether it was not a fact that outbreaks of cholera almost invariably started in Hosmane, Chickmaglur, or in the quarter inhabited by low-class Mahomedans, Mr. Stewart emphatically condemned Hosmane as a hotbed of filth and disease, and suggested its destruction and the reservation of the whole of that portion of the town for the building of residences for respectable inhabitants, such accommodation having been much sought after of recent years. The Mahomedan quarter near the market and shanti was also mentioned as a source of danger. A resolution to the effect that the Honorary Secretary be requested to confer with the Chairman of the Municipality regarding the above suggestions was put and carried.

Sanderson Memorial Ward.—The Honorary Secretary informed the meeting that the proposed rules that the ward should be for the exclusive use of Europeans resident in the district, and that the governing body should consist of the Deputy Commissioner, the medical officer in charge of the district, and one planter to be elected annually by the subscribers, had received the sanction of Government. This was noted with satisfaction.

Labour.—Mr. F. M. Hamilton said: "With the export tax of from 25% to 60%, according to circumstances, forced upon us by that unjust steward, the Government of India; with a reduced price for our staple and an increasing number of competitors subsidised by the aforesaid unjust steward, who has written down their practical debts to us by one-half or one-fourth; with also an increased expenditure on manure (which being mostly country stuff is rendered no cheaper) made necessary by natural causes, by old age, and fair wear and tear; and with losses caused by defaulters, we have reached the vanishing point of profit or even living wage. As apparently no help is to be looked for from Government, our only resource is to shift a portion of our burden on to shoulders which can ill bear it. The country was reaching a position of respectable independence by our help, but the Government of India has shifted its burden on to the shoulders of the poor ryots, and we must do the same, having a noble example to follow. Advances we have already been able to reduce, as none of us can afford to employ a sufficient number of coolies to do our full routine of work, so there can be no chance of competition. This is not enough: we must also reduce wages. To do this, of course unanimous action is necessary. We know t the native planters are ready to join us, and it remains for us to the terms for this district if we can combine. Local combinat however, can do no more than reduce the wages of local perhaps South Canara and Lombani coolies, as these classes, w the exception of South Canara coolies, are confined to Mysore. regards Ghaut coolies, there are so many to whom it is so absolut necessary to work that I do not think our reducing the wages wo affect the supply appreciably. It is for these three classes alone t I propose immediate reduction, but I think the time has arri when the Mysore, Coorg, Wynaad, and Nilgiri Associations sho combine to reduce wages of all Canarese and Tamil labour, an therefore hope you will carry both the following resolutions, something on similar lines: (1) that members of this Association bind themselves to pay no more than 3 annas per day for local, Sou Canara and Lombani men, or more than 2 annas for women of t same classes; that they also bind themselves to reduce the wages all maistries who are receiving more than Rs. 10 pay by 25%, a all those who are receiving more than Rs. 8 by 10%, and furth bind themselves to give no direct compensation; (2) that the Ho rary Secretary be requested to put himself in communication, throu the U. P. A. S. I., with those Associations using the same labour ourselves with a view to securing the same reduction in Maid Country and Tamil labour."

I personally would like commission reduced, but I am given understand that this would be objected to, as commission even the worst times was never less than it is now. Anyhow, I think might bind ourselves not to pay more than the present 5% for lo labour.

Mr. Stewart took exception to the pessimistic tenour of M Hamilton's speech, and trusted he would withdraw the expressi "vanishing point." He declined to bind himself in any way, ev as regards local labour, which being specially skilled in certain wor is worth the full wage.

Mr. W. L. Crawford considered the time inopportune for d cussing the subject of labour, as the report of the Committee Enquiry was still under the consideration of Government, and th before any change of rates was made, it was advisable to know wh new legislation was likely to be put in force.

Mr. Aird said he thought it was useless to continue the discussi as there was no likelihood of unanimity, which was absolute necessary.

Mr. Harris said he thought it was premature to bring forward scheme for the general reduction of wages, but thought that grou of estates might combine with a view to reducing the local rate of pa

Mr. Hamilton's motions were negatived.

Local Officials.—Mr. Stuart proposed, and Mr. Woodbrid seconded, that this Association wishes to emphasise the remarks the Honorary Secretary under the above heading in his report, and invite the attention of Government to the importance of the talu of Mudigiri and Belur, which entitles them to be served by high-cla officials.

Chaplain.—The Honorary Secretary was requested to convey the Bishop this Association's appreciation of the courteous and kind interest he had displayed in wishing to establish a clergyman in th planting districts, and to express its extreme regret that as far this portion of the community is concerned, the numbers are too fe to admit of an appreciable amount being raised towards the requir income.

Funds.—The proposal in the Honorary Secretary's report w adopted.

Proposed Game Act.—Messrs. Graham Anderson, Park, and Hunt were appointed to form a Sub-Committee to consider the Ac and submit proposals to Government.

General Meeting.—It was resolved that this shall in future held in Sacklaspur, and that its duration shall be decided by th Committee.

Rules.—Resolved that the President and Honorary Secretary *ex-officio* delegates to the U. P. A. Meeting.

Election of Office-bearers.—Messrs. J. G. Hamilton and J. A. Harr were re-elected President and Honorary Secretary; Messrs. L. Craw ford, G. Horne, J. G. Hamilton, J. A. Harris and W. H. Scott wer elected to form the Committee, and Messrs. Graham Anderso

[. Playfair and W. H. Scott as extra delegates to the U. P. A. A
of thanks to the officials for the past year closed the proceedings.

J. A. HARRIS, *Hony. Secretary.*

NORTH MYSORE.

'ROCEEDINGS of the Annual General Meeting of the North Mysore nters' Association held at the Club, Balihonur, February 28th, 8. PRESENT:—Messrs. F. Clifford, H. G. Bonner, L. Colledge, H. rthey, C. Browne, E. C. Bolton, C. Crawford, L. King Church, A. ster, W. H. Maynard, N. Seton, H. Pilkington, C. Harvey, H. gington, F. J. Parton, *Hony. Secretary.* Visitor: G. Horne. Mr. F. fford, in the absence of Mr. Scot-Skirving, took the chair.

The accounts for the year were audited and passed by Messrs. H. kington and R. G. Upton.

The Honorary Secretary then read the annual report as follows:—

Annual Report.—Gentlemen,—Your Committee have much easure in laying before you the annual report for the year now ding.

Accounts.—In spite of the fact that one of the largest proprietors s withdrawn his estates from the roll of the Association, the in- me has been sufficient to pay our expenses and leave the Reserve und of Rs. 1,000 intact. The number of estates now subscribing to e Association is 59. It is with deep regret that we have to record e deaths of Messrs. Brett, W. Allardice, Sen. McMaster and Lee uring the year under review.

Roads.—We are glad to say that on the whole the roads in the oppa District have been kept in better condition during the past ear, chiefly owing to the efforts of our energetic District Engineer Shimoga. This, however, cannot be said of the Balihonur-Aldur oad, the condition of which is very bad. Many of the culverts hich were damaged during the last monsoon are still unrepaired, nd we would once more urge the Government to make a large llowance for the upkeep of roads in the Mulnaad, and make arrange- ents for the closer supervision. We have to express our appreciation the energetic and rapid progress made in the construction of the ababooden Hill Road to a point (*viz.*, the Kesinourthy Estate), but the same time regret, in spite of repeated representations, abso- tely nothing has been done towards carrying out the easiest, least xpensive, and most used portion of the road (*viz.*, between Kulhut- pore and Lingadhully, a distance of not more than 4 or 5 miles; is portion is the outlet of the Bababooden Road on this side, and lso the only outlet for the following estates, Muskulmurdee, Sumpi- ay, Sumpigayhutty, Kurkulmutty, Doopatkhan, Lall Bagh, Shigay- han, Jignykhan (2) Doopat girry, Tekhan (2) Sidakhan, and Wany owda's Totas Kullay Gowda's Kesinvurthy, Kulhutty and Thair- iddykhan, which is at present only a track, passable in the dry eather, but next to impassable in the rains, and we may also add rom Kulhuttipore to Hebbay there are nothing but tracks, although ome of the finest estates in Mysore lie in this direction, and we most trongly urge the Chief Engineer to the necessity of carrying out he completion of this outlet before the coming South-West Monsoon, nd also sanction a road from Kulhuttipore to Hebbay for reasons given above, which may also benefit Government in opening out the outhern portion of the Luckwalli Forest. We beg to point out the leplorable condition of the Santaveri Chickmuglore and Lingad- ully Birur Roads. About two years ago Mr. Oliver was requested by he Executive Engineer to take up contracts on the former road as the Ex. Engineer admitted, he was absolutely unable to obtain labour to maintain and keep in repair the road in question), and was assured before the "Local Fund Board" that there would be no difficulty as to payments for work done, or interference from petty officials. Under these circumstances, Mr. Oliver induced two gentlemen to take up 6 or 7 miles of worst and ghaut portion of this road. The state of the road was thereby greatly improved, but, owing to the difficulties with reference to payments, &c., these gentlemen have absolutely refused to continue their contracts. The Tadsa Bridge is progressing favourably, but is not likely to be opened for traffic before the beginning of next year. We regret that the work on the Shimoga Railway has not been pushed on as quickly as we anticipated, the first section of which is unlikely to be in working order before next December. The new Katcherry building at Koppa is, we understand, shortly to be commenced.

Baggani Toddy Trees.—The objectionable Memorandum, No. 215, issued by the Excise Supervisor last October, relating to toddy drawing on Coffee estates, has, on account of the protests raised by the Association, been cancelled in the Malnaad, until the end of the current official year.

Agricultural Chemist.—The Mysore Government, through the Dewan, has expressed its intention of providing an Agricultural Chemist for the Province. The matter is, at present, under the consideration of Dr. Evans, head of the Geological Department, who has kindly undertaken the difficult task of selecting a competent man.

Scale Pests.—Although we are not at present afflicted with the green bug, your Committee are pleased to announce that sufficient funds have been collected to send Mr. H.O. Newport of the Lower Pulneys to Australia to bring over a consignment of lady-birds, with which it is hoped that the pest may be eventually exterminated.

Coffee Stealing.—In connection with the Hattan Kodigi case, a reward of one hundred rupees has been paid to the Police. We still have to deplore the fact that coffee stealing has not in any way decreased, and regret that the Police do not take advantage of the powers they have, more especially in examining the books of small dealers in coffee.

The South of India Planters' Committee.—With reference to the report of the Enquiry Committee, we trust that now the fear of famine is over, and the troubles on the frontier are within measurable distance of suppression, that the Supreme Government will find time to consider the report of the Commission.

Manures.—We much regret that Government has made no move in reference to the removal of the import duty on manures, but we hope that when Government recognizes the crisis through which our industry is passing, that steps will be taken to relieve us from what is a direct tax on our industry.

Dispensary.—We regret to say that the Dispensary at Santavari, which was sanctioned some time ago, has not as yet been established, and would point out to Government the urgent necessity of providing medical aid in that section of the Association. During the year three Committee Meetings have been held, the proceedings of which are laid on the table. We feel sure that you will join us in expressing regret that our Deputy Commissioner, Mr. Weir, is leaving us, and trust that he will enjoy a well-earned rest in England. Mr. Subba Row, the Amildar of Koppa, has taken up an appointment as Assistant Superintendent of Police at Chittaldroog. The loss the Koppa District has sustained is very great, for he always displayed the keenest interest in the planting industry, and was ever ready to render assistance to the community in general. Mr. F. S. Hay, who worked so hard as Honorary Secretary in the interests of this Association, has also left us to take service under the Mysore Government. You will join us cordially in wishing him every success in his new career. Mr. Frank Clifford, who has already done us such good service on the Local Fund Board, has kindly consented to continue his services, for which you will join us in expressing our thanks. In conclusion, we beg to place our resignation in your hands and ask you to proceed to the election of office bearers for the ensuing year.

FRED. PARTON, *Honorary Secretary.*

Mr. L. D. Colledge proposed, and Mr. C. Brown seconded, a cordial vote of thanks to Mr. Parton for the efficient way he had carried on the duties of Honorary Secretary for the past year.—*Carried nem. con.*

The Honorary Secretary then read a letter from Mr. O. Scot-Skirving, who was unable to attend owing to his departure for England:—

"Gentlemen,—I regret, beyond measure, my inability to attend the Annual Meeting of the N.M.P.A. When you meet together on the 28th, I shall be nearing England—you will understand that my departure prior to the Annual Meeting was a matter of necessity.

CENTRAL HOTEL,
INFANTRY ROAD, BANGALORE.
(Under English Management.)
The most comfortable and convenient for visitors.
TERMS MODERATE.

At the last Annual Meeting you did me the honor of electing me your President, and you will appreciate the keen disappointment I feel in being unable to be with you in person to give you an account of my stewardship during the past year, and will excuse the absence of the usual presidential address. Accept the message of regret and farewell which I send you from the train. The Annual Report which the Honorary Secretary will lay before you will, I am sure, ably explain the work which has been done during the past year. This I trust will be deemed satisfactory. In referring to matters other than the actual work of the Association, I fear we must look on this year as the most disastrous and unhappy one our community has ever experienced. Accompanying one year, generally speaking, of unexampled short crops and straightened circumstances to many of us, there has been death, sickness, and sorrow. Your sympathies will have gone without stint to those families who have suffered bereavement and are in sorrow. When you meet together on the 28th you will miss one who was the central figure and moving spirit of the Association as President, Member of the Committee and Honorary Secretary ever since he himself originated it, 17 or 18 years ago, one who never spared himself, but give the best of his time often at personal loss and inconvenience. Or the work of the Association, in referring to what Mr. Brett has done for our Association I need not remind you that to him is due, in great measure, if not entirely, the inception and formation of the United Planters' Association which has enabled the whole planting community of Southern India, as a collective body, to give expression to its needs in a force that is listened to by the Government of India. Gentlemen, the shock of Mr. Brett's sudden death came at a time when the cup of sorrow amongst our community was already full. Among other deaths, of which I will not remind you, was that of Mr. W. A. Allardice, who for years was a member of our Committee and who was formerly President of the original Mysore Planters' Association. In him the Association and the community, generally, lost, not only one of its oldest and most respected members, but one who was revered and honoured, whose life amongst us had been one of an uncompromising truth, and whose wise counsel will never cease to be missed. Gentlemen, I now tender you my resignation as President of your Association and bid you farewell." Mr. Leslie proposed a vote of thanks to Mr. O. Scot-Skirving for his services as President during the past year, and regretted the cause which had prevented his attendance at the meeting.

The Committee was then balloted for with the following result:—

Mr. E. C. Bolton—*President.*—MEMBERS:—Messrs. F. J. Parton, C. H. Browne, F. Clifford, W. H. Maynard, H. M. Northey and H. Pilkington.

Mr. Bolton returned thanks for the unexpected honour done him, and while regretting the absence of abler men to fill the position, assured the meeting that no efforts on his part would be wanting to merit the confidence placed in him.

Laid on the table letter from the Right Reverend the Lord Bishop of Madras *re* the appointment of a Clergyman for the Coffee Planting districts of Mysore. Resolved that while the Association thoroughly appreciated the kind interest displayed by His Lordship in the spiritual welfare of the planting community regretted that it could not officially support the proposal, but requests the Honorary Secretary to make enquiries as to the probable amount of voluntary contributions that might be forthcoming for this object.

In connection with the above, a letter was read from Mr. Maxwell Maynard which the meeting decided was also a matter for private enterprise.

Read letter from the President of the Local Fund Board in reference to the proposed tax of 1 or 2 annas to be levied on carts resorting to the Koppa Bazaar, the proceeds of which should be devoted to the cleaning and fencing of a general sanitation of the Koppa village.

Unanimously resolved that the Meeting strongly disapproves of any such tax being levied on carts resorting to the Koppa Bazaar, as it would tend to drive away the import of grain and other food supplies. This Meeting considers it the duty of the Municipal authorities to keep the Koppa village in a sanitary condition without the imposition of so objectionable a tax.

Agricultural Chemist.—Read letter from Mr. Maxwell Maynard. Resolved that the Honorary Secretary be requested to communicate again with the Mysore Government in the appointment of an Agricultural Chemist for the Province, urging the necessity of early action in the matter. Draft of Act for the protection of wild animals in Mysore territory.

Resolved that a Sub-Committee of the following gentlemen be formed:—Messrs. C. Browne, W. Maynard, L. King Church, H. kington and F. Parton, be formed to consider the proposed draf

After the usual vote of thanks to the Chairman and Hono Secretary, the meeting broke up.

MARKET REPORT.

COFFEE.

Messrs. R. J. Rouse & Co.'s Weekly Coffee Report (March 4, 1898) say Larger supplies have been brought forward in Public sale this week meeting a fair demand were mostly sold at previous values.

About 3,300 bags East India were offered and nearly all disposed steady prices whilst some favourite marks of Naidoobatum attracted competition and realised extreme rates.

Fine Costa Rica also met a good market at very full value but medium and inferior descriptions sold slowly at irregular to slig easier prices.

The terme market has been inactive with only a small business pas and quotations are practically unaltered since our last.

Our monthly statistics published to-day show an increase of 8050 in European stocks, and a reduction of 570 tons in the World's vis supply.

Messrs. Wm. Jas. and Hy. Thompson's Report of the Colonial Markets the Week ending March 2nd, 1898, says:—Bank rate 3%. Bom Exchange closes at 1s. 4d. Brazil Exchange $6\frac{1}{16}$d. Rupee pa $3\frac{1}{2}$% $63\frac{5}{8}$. Silver $25\frac{3}{8}$d. per oz.

A quieter tone has prevailed in this market, the more important s plies of all kinds meeting with less competition. At the close the ton dull, and we quote a general decline of 1s to 2s per cwt., except for fin which continues very scarce. Brazil markets are quiet but steady.

The Dutch sale of 21,026 bales Java, 53 cases and 20 bales Padang, h in Rotterdam yesterday, went off with competition at an advance 1 to $1\frac{1}{2}$ cents. Good average Java is now quoted at 35 cents.

Daily receipts averaged 8,100 bags in Rio, and 11,300 bags in Santos.

Futures have ruled quiet, and close about 3d lower, viz.:—Good aver Santos in Havre, March delivery, fcs. 36.75, in Hamburg pf. $30\frac{1}{2}$, and N low ordinary Rio in New York $5.60.

To-day's London official quotations are:—

	March	May	July	Sept.	Dec., '9
SANTOS ...	30/-	30/3	30/9	31/-	31/6

We quote:—

Ceylon, mid. to good mid.	95/@107/	Costa Rica, mid. to fine...	77/ @1
Do. small to low mid.	80/ „ 93/	Do. ord. to low middling.	53/ „
East India, mid. to good mid...	77/ „ 93/	Jamaica, good to fine ord.	43/ „
Do. small to low mid.	62/ „ 76/	Do. greenish to fine colory...	70/ „ 1
Guatemala, mid. to fine...	74/ „ 103/	African ...	29/ „
Do. good ord. to low mid...	55/ „ 70/	Columbian, ordinary ...	38/ „
Salvador, good ord. foxy greenish...	43/ „ 46/	Do. good ord. to low mid...	45/ „
		Do. mid. to fine...	73/ „

Receipts in Brazil to 2nd March compare as follows with previ years:—

	1897-98.	1896-97.	1895-96.
	Bags.	Bags.	Bags.
RIO	3,295,000	2,658,000	1,884,000
SANTOS	5,140,000	4,181,000	2,671,000
	8,435,000	6,839,000	4,555,000

Auctions:—

35 casks and tierces 12 barrels 1 bag Plantation Ceylon 75/ to 12 3,711 bags East India, viz.:—1,915 bags Neilgherry 55/ to 106/6, 604 b Wynaad 50/ to 103/, 353 bags Nelliampathy 56/ to 104/, 200 bags Shevar 79/ to 101/, 613 bags Naidoobatum 57/ to 111/, 26 bags old Pulneys boug in; 1,650 bags Guatemala, part London cleaned, chiefly sold at 35/6 104/6; 2,187 bags Salvador, part London cleaned, chiefly sold at 62/ 100/6; 13 bags Vera Paz bought in; 102 bags Venezuelan, part Lond cleaned, 39/ to 90/; 299 bags Nicaragua, part London cleaned, small p sold at 29/; 1,813 bags Columbian, part London cleaned, chiefly sold 44/ to 94/6; 1,593 bags Costa Rica, part London cleaned, 50/ to 105/6; bags Peruvian bought in; 74 bags Mexican bought in; 76 bags Liberi Ceylon bought in; 60 bags Liberian Selangor bought in; 18 bags Ecuad damaged 13/; 992 barrels 57 bags Jamaica, part London cleaned, par sold at 30/ to 95/; 150 bags South Sea Islands bought in.

On Quay Terms:—47 bags Santos bought in.

PLANTING OPINION.

A WEEKLY JOURNAL

WRITTEN BY PLANTERS FOR PLANTERS.

L. III.] COONOOR, SATURDAY, APRIL 2, 1898. [No. 13.

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SUBSCRIPTION.—Advance Rates: Yearly, Fifteen Rupees; Half-yearly, ht Rupees; Quarterly, Five Rupees, and Monthly, Two Rupees, including tage. Single Copies, Eight Annas.

ADVERTISEMENTS.—From the 1st October, 1897, the charge for advertisements will be: 4 as. per line for the first, 3 as. for the second, 2 as. for the third and succeeding insertions. Five-line advertisements m Subscribers will be inserted for three issues for one rupee; non-Subibers will be charged two rupees.

DOMESTIC OCCURRENCE.—The fee for inserting a domestic urrence will be *One Rupee* for each insertion, payable in advance.

N.B.—Remittances should be sent to the Manager, "Planting Opinion," lanade Row, Madras.

IMPORTANT NOTICE.

The Business Offices of this paper having now been moved to Madras, all remittances should be made payle to the Manager of *Planting Opinion*, 3, Esplanade ow, Madras, who will also attend to all advertisements, &c. Letters to the Editor should be addressed to Coonoor, usual.

SEASON REPORTS.

NOTICE.

TO OUR SEASON REPORTERS.

Please post your next reports to reach Madras on Friday, the 8th April, 1898.

Season Reports should be sent to the Printers, Messrs. ADDISON & Co., direct, and not to *Planting Opinion* Office.

S. E. Wynaad.

DEVALA, 30*th March.*—*Weather.*—During the past four days it is very, very hot by day, and about every evening the clouds bank up and show every sign of rain, but the strong east wind follows and breaks up the clouds and causes the failure of rain. Yesterday evening we had a few drizzles which is worth nothing. *Crops.*—Spikes hold out still, but rain required soon to set. *General Health.*—Fever prevalent.

Nilgiris.

COONOOR, 30*th March.*—*Weather.*—Rain still holding off, though clouds are banking up persistently. A few showers would do wonders for the blossom already out on the lower totes, and also for the fine spike on the upper ones. Tea, too, wants rain badly. *Crops.*—Coffee not in yet on high estates, where picking will go on some months yet. On the whole the hills have done very fairly, and if this year's rains are favourable will do excellently for the 1898-99 crop. *General Health.*—Indifferent. *Labour.*—Ample as usual. *Interesting Item.*—Station filling up rapidly for the season.

KULLAKAMBY, 31*st March.*—*Weather.*—The clouds have been gathering for the last few days, and distant thunder heard, so rain cannot be far off. *Crops.*—Some blossom which came out early has been lost for want of rain; but on an average the amount is small, and if rain falls in a day or two, the spike promises a good crop. Pruning nearly completed on some estates, but the higher ones are still gathering a little crop. *General Health.*—Influenza rather frequent, and a little fever; otherwise health good. *Labour.*—Sufficient. *Interesting Item.*—A panther has been prowling about the neighbourhood, but so far has done no mischief beyond mauling a dog.

PLANTING IN THE MALAY STATES.

The first Annual Report of the United Planters' Association of the Federated Malay States contains matter of moment to all interested in coffee. Coffee in the Malay States is almost exclusively Liberian, for which the local conditions of soil, rainfall and temperature are most admirable. Bountiful crops can be obtained regularly to a degree unequalled, save, perhaps, in America. The prices, alas, of Liberian have fallen to almost the lowest depths of a low and falling market, though not quite so low as Rio and Santos. While the latter was selling at 23s. 6d., Malay Liberian fetched 32s. to 33s. at the same time. It is with these common varieties that are being produced in yearly increasing quantities that Liberian has to successfully compete, if the industry is to keep its head above water.

The Chairman of the Malay U. P. A., Mr. Hill, reckons that estates of 300 to 400 acres in full bearing and highly cultivated can be looked upon to produce a crop of 5½ to 6 piculs (6 to 7 cwt.) per acre at a cost of from 90 to 95 dollars per acre, with the coffee delivered in Singapore, representing roughly 3¼d. to 3½d. per lb. in London. Is there any country where coffee of a similar grade can be produced cheaper than this? The estimated cost of the largest Coffee Company in the world, the Dumont Co., is £40 per acre, and the time to bring it into full bearing is placed at five years. Mr. Hill points out that the difference in initial cost per acre is thus very great. If these figures held good for all South America, Malay planters would have very little to fear, but the capital cost of most of the Brazil plantations is, we understand, substantially less than that estimated by the Dumont Company. It is of the first importance that the actual cost of production be ascertained, as it will enable Malay to know what its chances really are.

In the meanwhile, Mr. Hill strongly urges that every effort should be made to bring the grower and producer into closer touch, and to do all that is possible to introduce Liberian coffee on its own merits to the public. The urgency of the matter may be appreciated when we point out that, according to Mr. Hill's figures, the cost of production fully equals the selling price in London, from which again brokerage and other charges must be deducted. So that, if we have understood Mr. Hill aright, Liberian coffee in the Malay States is very far from being a remunerative staple. The improvement in the labour supply is perhaps the solitary bright point in the report, though the President of the Malay U. P. A. adopts all through a far more confident and cheery tone than might be expected from our remarks. There are brighter days in store, we sincerely trust, for Malaya, and if Liberian coffee cannot be made to pay, it must be abandoned for Arabica, or better still for tea, ramie, rubber, camphor, or any of the other new products now demanding attention.

We note that this view has evidently, and none too soon, struck the planters themselves, and they have addressed Government on the subject of establishing experimental gardens.

NOTES.

Ceylon has exported 14¾ M. in January and Februa (22nd) compared with a very even output of 12½ to 12¾ during the preceding three years.

Tea Exports. The total sailings of Indian t from Calcutta for the eleven mont ending 28th February 1898 were over 146⅘ million pound compared with over 146 M. for the corresponding peri in 1897 and 133 in 1896. For America the figures a respectively, under 2½ M., over 2⅘ M., and over 1 M. F Australasia there is a slight increase over the two last yea *i.e.*, over 6½ M., as compared with 5⅘ and 6½ in 1897 a 1896 respectively. "Other places" show a total of ve nearly 5 M. against 6¼ and 4¾ M. the previous two yea Lastly, Great Britain took 132⅘ M. compared with 131 and 120¼ in 1897 and 1896.

"Pungent" Manures. In one of the last issues of t Calcutta *Planter* we notice a curiou written article on "Pungent Manures." According to t worthy writer, it seems that the intrinsic value of a manu is based on its smell! The writer, after saying "h wonderful it is to reflect upon the ignorance as to the co stituents of manures . . . . that has prevailed down to with a very recent period," straightway asserts that the act burning bones destroys their phosphates!

It is not often that our serious contemporary enlivens with gleams of humour, and we hope its staff will strengthened for many a long day to come by the pen the author of "Pungent Manures."

The Cacao Market. Prices, says the *Grocer* of 5th u still pursue a downward course, a are mostly 1*s.* to 2*s.* lower than they were last week, but fairly good demand prevails, and the bulk of the parc offered by auction has found buyers, the most attract portion being composed of 5,715 bags Grenada, which w at from 70*s.* to 77*s.* for common to fine, with poorer qualit at 65*s.* to 69*s.* per cwt. 3,420 bags Ceylon were about o third sold at 70*s.* to 78*s.* for ordinary to bold red, at 80*s.* 85*s.* for fine (bought in), at 60*s.* to 68*s.* for small and mix and at 49*s.* 6*d.* to 59*s.* for black and packings. The oth description in public sale appeared in much lighter quan ties, and passed the hammer as under:—445 bags Trinid at 70*s.* to 75*s.*; 220 bags Dominica at 69*s.* 6*d.* to 72*s.*; bags Jamaica at 67*s.* to 67*s.* 6*d.*; 103 bags Surinam at 7 89 bags Guayaquil at 76*s.*, and 78 bags Java at 62*s.* 6 but 120 bags Samana were retired at 75*s.* and 300 ba Venezuela at 85*s.* to 95*s.* per cwt. By private treaty business done includes Summer Ariba (Guayaquil) at 8 to 85*s.* and Ceylon at 72*s.* to 76*s.*

The Claridge transplanter. We have received a couple samples of these transplanters, wh seem to be excellent departures more ways than one. The practical trial to which we s mitted them induces us to offer a few remarks wh Mr. Claridge may possibly find of interest. For protrac use the transplanter seems too weak, but by adoptin shorter grade of tin, this fault could be easily remedi We should also advise a removable handle to be fixed

top of the transplanter, to enable the cylinder to be ssed easily into the earth without hurting the hand. e handle might be of wood, say a foot or nine inches g, and 4 to 6 inches broad by 1 inch thick. The centre uld cut out to allow a free passage to the stem of the nt, and the lower side grooved to fit the cylinder. In t weather it strikes us that there is a chance of the th-ball clinging to the side of the cylinder, and thus venting its removal. A "rammer" or two per every zen cylinders might prove very useful in such cases. With these changes Mr. Claridge's transplanter will, we nture to prophesy, turn out to be a most useful and luable little implement. By the way, we should much e to know where this new transplanter can be supplied olesale, and its price per 100 or 1,000.

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mphor and coca plantations.

It is a little "previous" to suggest methods of treating a new product like camphor or coca for cropping rposes, but we do so for the benefit of the few owners no happen to possess individual plants. The crop in both ses is a leaf one, and it is, therefore, highly desirable that should be grown in such a way as to favour its increase d render its handling an easy matter. The simplest ethod that occurs to us would be to treat the plants, if possie, like tea, that is prune them down and pick the flushes. ithout actual experiment, it is of course impossible to say w they would stand the treatment, but as it has proved eminently successful with tea, it is certainly well worth ying. To forecast the course of the market, if either oduct were largely cultivated, is extremely difficult. But regards coca, the present yield is so great, close upon lf a million pounds, that any fears of flooding the market ay be abandoned for very many years to come. The ltivation of camphor is being so actively pursued, and in many parts of the world, that a more careful attitude ust be observed. In both cases, however, experimental ltivation could be carried on easily enough, and at a very ght expense on most coffee estates and a good many a-gardens The Curator of the Government Gardens, tacamund, should be able to meet a small demand for th these products.

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e Moon and Vegetation.

A writer in our interesting contemporary, *Indian Gardening*, has a very emphatically written letter on lunar changes with regard to vegetation." He alleges ry strongly that the moon has a very powerful effect, deed, on vegetation, and goes so far as to label disbevers in his ideas as "mutton-heads." In proof of his contion, he brings foward the "experience of thousands," hich is of course conclusive.

There are one or two points which could easily be settled, for instance his assertions on timber-felling. His idea that the sap of plants rises and descends with the changes the moon. So that to coppice a plantation, the trees ould be felled when the moon is invisible, as "the whole its sap" is supposed to be in the stool. This is also the est time for felling trees for timber or fuel. If, on the ntrary, one wishes to utterly destroy all vestige of life in plantation, one need only, so "Luna" gravely informs us, oose a full-moon night to fell the trees. Bamboos are also luded to, as might be supposed. These should be cut at the wane of the moon. The gathering of crops should always take place under a three-quarter-full-moon, never a waning one. All root crops are lifted with a waning moon and planted with the same. Another curious superstition is connected with the plantain, which never grows properly if planted at the wrong time. Even flowers or ripe fruit are never gathered under a waning moon after sunset.

We shall be glad to hear from any of our correspondents who have personally (we do not care for third or fourth-rate evidence) investigated the matter.

Leaf Disease in Queensland.

Mr. Tryon, the Government Entomologist, of Queensland, referring to a telegram from Townsville, that the coffee leaf-disease is prevalent in the Russell district, says the department have officially dealt with this rumour months ago; and that in no case has he found any symptom of the disease in question. It has been whispered abroad for some time past that this dread scourge of the coffee planter had made its appearance in this district, but nothing of a definite nature is known yet as to its presence. When Mr. Tryon was in Cairns, it was reported that the disease occurred in more than one plantation, and he went to the trouble to travel to the Johnstone River, and examine all the coffee *en route*. On that occasion he could find no indication whatever of leaf-disease proper, though affections in the coffee plant were noticed, which might give colour to the suggestion that they were victimised by the notorious Ceylon disease. As a matter of fact, the department officially dealt with the rumour months ago, and the regret is that it should be revived and have been circulated to the extent it has. He is now engaged in investigating insect and fungus pests, and his enquiries have led him to examine nearly every coffee plantation in Queensland. Speaking generally, the Government Entomologist considers the coffee plant in this colony to be extremely healthy, and in no case has he seen any characteristic symptoms of the *Hemeleia vastatrix*. As he explains, wherever plants are cultivated, no matter what kind, they have some enemies, and coffee in Queensland is no exception to the rule.

Indian oranges for England.

The small percentage of our readers who have any faith in the latest possibilities of fruit-growing will be greatly interested in the following extract from *Indian Gardening*. There are few planting districts in South India where the orange will not grow to perfection with ordinary care. The difficulties experienced in the proper packing and transport of the ripe fruit to such a far distant market as London, great as they are, are not insurmountable. We hope our contemporary will give its special attention to such subjects as the best shape of crate to be used, the best method of "sweating" or seasoning the fruit in order to toughen the skin, and such kindred matters.

Messrs. W. Hutchinson and Co., a London firm, write as follows on the subject of Indian oranges for the London market:—

"It may, perhaps, interest some of your readers to know that in 1894-95 we received several consignments of oranges from the Central Provinces in India, and many who sampled them described them as the finest oranges they had ever tasted. The oranges were sold by us through a leading Covent Garden salesman, in some instances at as high a price as threepence each. It should be mentioned that they arrived at a time when oranges in this country are generally considered 'over.' But in spite of the high price realised, the venture,

presumably, was not, from the growers' point of view, a financial success, as the consignments have not been repeated. We think two causes alone were responsible for the failure of the experiment. First, the oranges had to come over as ordinary cargo, and a large number were pilfered *en route*. (We, who know the oranges, feel almost inclined to condone this offence!) And, next, owing to the want of proper accommodation, only a comparatively small portion of the consignment was fit for sale. Further, the shipper had great difficulty in getting any of the steamship companies to carry the consignments. We venture to think if proper freight accommodation for carrying fruit was provided by some of the steamship companies, as is the case with regard to Australia and America, a large and very profitable export trade in Indian fruits would be speedily created."

The London Market.

Coffee.—Larger supplies have been offered this week, says the *Produce Market Review* of 5th ultimo, and the demand has improved, although prices continue to show the same wide margin between the lower and fine grades. A decidedly lower range has been established for common and medium Costa Rica, and these qualities are now relatively cheap and should lead to a much larger business. The finer ones are, however, still comparatively scarce, and only come forward in such small quantities that prices are fully maintained. East India continues to sell freely for export, but the home demand is slow; the first of the new crop of Naidoobatum which has been sold this week should, however, alter this. The quality is quite equal to the standard of recent years, and although the bold fetched about the same prices as last year, the second size was from 12*s.* to 16*s.* lower. Of other kinds, Guatemala only sells slowly, but a better trade has been done in Salvador, of which description a much larger quantity has been sent than in any previous year. The terminal market has shown some fluctuations, but closes at about the same prices as last week.

London Coffee Returns.

—	Home Consumption.		Export.		Stock.	
	1898	1897	1898	1897	1898	1897
For the week ended Feb. 26, 1398.	Tons. 294	Tons. 272	Tons. 458	Tons. 279	Tons. 10,326	Tons. 7,832
For the 8 weeks ended Feb. 26, 1898.	2,252	2,166	3,011	1,897	—	—

Indian Teas.—The season has practically closed in Calcutta, the last public sale having been held there a week ago. This has imparted a stronger tone to the market, especially for the fine and finest descriptions, and it now seems quite probable that the supply of the finer teas will be more restricted during the next few months than appeared likely a short time since. Although there has already been a material advance from the lowest point in these grades, it is by no means improbable that values may mark a further important rise, as there is likely to be a gradually decreasing proportion of these kinds in future public sales here. The more useful medium sorts have shared in the upward movement, but not to the same extent as the finer teas, the rise being from ½*d.* to ¾*d.* as compared with the prices ruling at Christmas. Even at the advance it will be practically impossible to follow teas of the earliest crop, as most of the supplies now coming forward are deficient in quality, while the appearance of the leaf is also indifferent. The lo qualities, with few exceptions, are unchanged in value, as Calcutta advices indicate that a large proportion of later shipments will consist of common qualities, ther not likely to be any scarcity of these kinds. Compar the figures of the past month with those of February year, the imports are smaller by 629,000 lbs.; deliveries s a slight increase, *viz.*, 82,000 lbs., while the stock stand 64,080,000 lbs. against 55,424,000 lbs. At the public s 35,679 packages were brought forward, 4,465 of wh were withdrawn.

Experimental Gardens.

Unless the U. P. A. S. I. general, and its Nilgiri section particular, soon bestir themselves, even the present ap gies for experimental gardens on these hills will soon van The Ootacamund garden is already—in an experime sense—*non est*, the Gudalur garden is practically abando while the Burliar garden alone possesses vitality. A c plete system of botanical gardens could very easily be car out on the Nilgiris and Wynaad, for in these two distr we have samples of every variety of soil and climate to found on the Western Ghauts. Supposing a planter want plant up a new product of any kind, how is he to set abou at present? Where is he to get absolutely reliable infor tion as to its habits, the best conditions of soil, climate, e under which it should be grown? Echo answers, whe If a chain of gardens were established on the Nilgiris Wynaad, the information he wants could be easily gi from the living examples on the gardens. Let us giv short sketch of what we mean. To commence with, e garden need only be a few acres in extent, though at 20 acres at least should be reserved for future extens As we mentioned before, the Nilgiris and Wynaad c endless combinations of climate and soil. Kullar, at foot of the ghauts, offers a very good sample of a hot, climate. At Burliar, a few miles up, we get rather m rain, and the heat is many degrees less. A third gl garden at Glenmore, and a fourth at Coonoor itself co each have their distant uses. Then midway betw Coonoor and Ootacamund, and between Ootacamund Pykara, thence down to Gudalur, Devala and the W Coast. In the chain the rainfall would vary from ab 40 inches or less to over 200, with elevations from 1, to 7,000 feet. Some would have the South-West Mons in all its force, others the North-East, yet others ag would have a modicum of both. The gardens establish

COFFEE SHADE TREE.

Sun-dried Erythrina Lithosperma loppings, &c., contain ton:—

61·50 lbs. Nitrogen.
57·38 „ Potash.
14·92 „ Lime.
13·68 „ Phosphoric Acid.

Seed cured under Messrs. Sutton and Sons' advice.

Orders should be booked early for the coming crop of seed f the parent trees of above analysis at Rs.6 per pound contai about 2,000 seeds. *Germination guaranteed.*

Only thornless variety extant, and is not procurable anywhere s from the

MANAGER, ARIENKOW ESTATE,

Shencotta

a few specimens of every economic plant would be planted in each garden, and the conditions best suited to any given product could be unerringly discovered. The next step would be to enlarge the gardens by devoting, say, an acre or two in each garden to the exclusive culture of the few products which have been proved to thrive exceptionally well therein. Camphor, for instance, would probably be found to grow well in all the gardens, and it would be a matter of indifference in this case where to extend its cultivation. As its yield and cropping powers are at present unknown, it would be imperative to devote at least an acre to its exclusive cultivation. Kola again would probably thrive best in one of the Wynaad districts, where consequently its cropping powers could be tested.

In a word, there are two principles to be observed,—first to find out where a given plant grows best, and, secondly, to extend its cultivation in order to demonstrate its cropping powers.

The accepted idea of a bureaucratic Government, like the Indian one, is that it should anticipate the needs of its subjects and with a wise forethought lay the foundations of industries previously non-existent. It has done this with tea, coffee and cinchona, but its half-hearted attempts in other directions have met with such slight encouragement that it may be well excused from doing anything further. Ignorance and stubbornness on the part of its subjects, however, should not cause a wise and powerful Government to abandon its efforts. Still, it must be borne in mind that a very slight encouragement on the part of the public would most probably urge it to far greater efforts than if it—the public—maintains its present indifferent attitude.

LETTERS TO THE EDITOR.

WEEDS AND WASH.

Sir,—Your latest *P. O.* to hand, with an article headed "Liberian in the Straits." I should have been inclined to have headed it "Notes on Planting for a Beginner." With reference to weeding, the writer states, "That a good many old and experienced planters argue that it does no harm to have weeds; that on the contrary, in hilly ground, it prevents the top soil from being washed away, and saves the roots of the coffee from being exposed to the sun. Believe me, the planter who argues thus is either a fool himself, or he thinks that you are one," &c. I quite agree with the writer in so far that the man is a fool who believes that the principal reason for leaving weeds is to protect the roots from the sun! But I do think the man who believes that weeds "will absorb all the nourishment instead of the young coffee, and *will also prevent rain from penetrating the soil* and *reaching the roots of the coffee*"!—well to say the least of it, should not think his listeners the fools. Let me refer him to *P. O.*, Vol. II., page 97, and let him read for himself the reasons given by old and experienced planters for leaving weeds, and see if they are what he says they are. For those of your readers who may not have the number referred to by them, or think it too much trouble to refer to it, I may quote the following: * * "The solution of the whole difficulty (the enormous wash caused by the heavy rainfall in most coffee districts) lies in a judicious system of weeding. Some of our most experienced planters,—Mr. G L. Yonge, I think among them,—were of opinion that hand weeding should never be done, but that the weeds should be simply hoed in. After 16 years of experience, I find myself in perfect agreement with the opinion that hand weeding should never be practised. One strong reason against it is that the roots should always be allowed to decay in the soil, as this insures a more equable diffusion of organic matter through the particles of soil." True, that if weeds "be allowed to grow up they will suffocate the young plants altogether," but then who intends that they should be allowed to do so? "*Grass knife* the weeds in heavy wet weather," &c.

It appears to me that your correspondent is of the "Ceylon order of things" and is an advocate of clean weeding on the score of expense. "If an estate is clean, a woman will be able to weed from 200 to 400 trees in a day, but if your estate is under weeds, she will not be able to do more than 10 to 20 trees." They must be really *awful* weeds, them weeds that grow in the Straits! for a woman to do only 10 to 20 trees! For in S. India the task I have given women, and which they regularly perform, in weeds that are as high as the coffee, is from 125 to 150 trees 5′×6′—clean work. However, be this as it may, the clean weeding may cost less, but at what expense? How about the loss of crop, or even of the trees themselves, when the surface soil has been all carried away? Has this not been the cause of the ruin of coffee in Ceylon, together with a want of the knowledge of shade? Is this not the reason for S. Indian planters having nothing to say to Ceylon methods and ways? What has been the ruin of Ceylon Coffee Planting may possibly become the ruin of them also, should they depart from any of their old customs. Coffee is in a more flourishing condition in S. India than it has ever been before, whereas in Ceylon—well, well, draw the curtain! If, then, S. India has left Ceylon so far behind—why will not Ceylon men not take a back seat and modify their views with regard to coffee planting? We should not then hear the so oft-repeated "*that's* not the way we do in Ceylon!" which so exasperates the S. Indian planter, knowing as he does the difference in the condition of the industry in the two countries.

Anti-Ceylon.

GENERAL ARTICLES.

THE SAN JOSE SCALE.

We learn from the *Deutsche Landwrithschafts-zeitung* that the German Minister of Agriculture is taking active measure with regard to the possible infestation of fruit-trees by the San Jose "Schildlaus." A small committee of well-known entomologists and botanists has been appointed to investigate the matter, and steps are being taken to render fruit-growers and other cultivators familiar with the appearances and the life-history of the dread *Aspidiotus pernicissus*. It has been announced that the fruit-growers of Ontario are endeavouring to prevent the importation of fresh fruits and nursery stock from the United States on account of the risk of introducing the destructive scale into the fertile Canadian fruit region between the Lakes. Since we referred to the subject a fortnight ago, the New Jersey experiment station has issued a bulletin, in which it is stated that all hope of exterminating the insect in that Atlantic State must now be abandoned. It is already well established there in gardens and orchards—hedges, small fruits, and tree fruits all being infested. From badly-infested orchards the pest is spreading through the agency of birds. Peaches are especially sensitive to attack, and will die in three or four years from the first appearance of the scale if the latter is allowed to pursue its course unchecked. Thin-leafed varieties of plums appear to come next, then pears, and finally apples. On the other hand, some varieties of cherries seem to be almost exempt. The boundless reproductive powers of the insects and its inconspicuous nature render it especially dangerous, and the opinion is expressed that the San Jose or pernicious scale is the worst and most destructive insect

pest that has ever appeared in New Jersey. Unchecked, it will in time ruin any tree it attacks, and will render the fruit unmarketable long before the tree itself dies.

From Ohio it is reported that, besides gooseberries, currants, raspberries and roses, the San Jose scale attacks the grape vine, the lime tree, the elm, the walnut, the Lombardy poplar, the sweet chestnut, and the guelder rose, all of which grow in England. A favourite victim is the cotoneaster, which is specially liable to attack from various species of scale. In the State of Virginia, where the scale first appeared in 1893, it has not, through lack of systematic treatment, been thoroughly subjugated, and further trouble is anticipated; in Kentucky there is a demand for legislation against the spread of the scale. A fact about which more is becoming known, and which is bound to receive considerable attention in the future development of agricultural entomology, is that insecticides appeal to have different effects in different regions. Thus, it is asserted that insects which succumb readily to kerosine in the Atlantic States defy it absolutely in Colorado. Again, washes that easily destroy the San Jose scale in California are utterly ineffective in the Atlantic States, where this insect appears to be materially altering its habits and life history.

NUTMEGS ON PLANTATIONS.

Among the many valuable trees that would be profitably planted in our plantations, nutmegs occupy a front rank. As a shade tree, *pur et simple* for coffee, it is not suited, but if treated as part of the estate and regularly manured and tended, it should well repay planting. On low country tea-gardens it would be also a useful tree, if planted at intervals in sheltered positions. We take the following account of its cultivation from the *Produce World*:—

The nutmeg-tree being a very remunerative tree to cultivate has naturally attracted the attention of settlers in various parts of the tropical world—East and West; in fact, a nutmeg plantation once established is a permanent source of income, the expenditure on cultivation and harvesting the crop being lower than that which has to be expended in the production of any other class of tropical produce.

The true nutmeg-tree, known botanically as *Myristica fragrans* and *M. officinalis*, easily attains a height of 40 or 50 feet; it is pyramidal in form, evergreen, and handsome in appearance. It is a native of the East Indies, and is cultivated in the Molucca Islands, Java (*literally the Malay word "Java" means "land of nutmegs"*), Sumatra, Straits Settlements, and is especially luxuriant in the Banda Isles, almost the entire surface of three of the group being devoted to it, the volcanic nature of the soil of these islands, the deep shade and excessive humidity of the dense forests being eminently suitable to its growth. It is also cultivated more or less in nearly every West Indian island; some of the finest plantations existing in Grenada.

Cultivation.—In selecting ground for nutmeg cultivation, care should be taken to secure a sheltered spot, protected from the southerly and northerly winds by a skirting of lofty trees, and, if Nature has not already made this provision, no time should be lost in belting the grounds with a double row of some tree of rapid growth; the *Cassuarina littoria* and *Cerbera manghas* are well adapted to this purpose. In the West Indies they plant trees called "Samans" for this shelter. This precautionary measure will not only secure the planter against eventual loss from the falling off of the blossom and young fruit in heavy gales, but will prevent the uprooting of the trees; a contingency to which they are liable from the slender hold their roots have in the soil. If the plantation is extensive, subsidiary rows of these trees may be planted at convenient distances, but no large tree whatever should be suffered to grow in the rows of spice-trees, as such would rob the soil of its fecundity. Virgin forest land is best suited to the crop; but that which is extremely dry or extremely wet should be rejected. Land which is liable to remain under water for any length of time during the rainy season should never be chosen.

The nutmeg requires a mean annual temperature of from 7 78° F., with a rainfall of not less than 65 inches per annum, greater fall would be more suitable; one even as high as 80 inches not being too much. In the West Indies these cli conditions can only be obtained at or near the sea-level, but in climates they are met with at greater altitudes; the trees, how are not so robust.

Seedling trees are almost invariably used for planting. Care sh be taken to select *ripe* nuts; none should be used which do rattle in their shell when shaken. To ensure strong plants largest only should be used. In the East Indies they are usu set direct in the earth, about a foot apart and merely covered lightly with mould. They must be protected from the heat of sun, watered in dry weather every other day, and occasion weeded. They may be expected to appear in from thirty to days, and when four feet high, the healthiest and most luxurian removed at the commencement of the rains to the plantation, viously cleared of trees and underwood by burning and grubbin the roots, and placed in holes dug for their recception at distance of thirty feet from each other, screening them from heat of the sun and the violence of the winds. In the Indies another plan is adopted; the seeds are germinated in bo as many as 500 seeds are set in a "one-dozen brandy case," and the plants are about six inches high they are transplanted bamboo pots, to grow on for another six months before planting they should then be one foot in height, the smaller and the we ones being rejected. It is evident that 1,000 seeds planted in b can be looked after much more conveniently than 1,000 distrib over five acres of land.

In planting the nutmeg from bamboo pots, the first care shoul to prepare a large hole in the ground, some two feet or mor diameter (the larger the better): dig this out eighteen inches or feet deep, put the top spit on one side and the bottom spit als itself. When the hole is complete, turn into it the top spit, m with manure (if available), or if not, the surface soil of the surro ing field or any kind of decomposed vegetable mould, and fill up hole level with the surface mould, treading it fairly solid, sprea the heap of bottom spit earth around the surrounding sur although discarding it for use in planting. In the centre of arrangement a small hole is now scooped out to receive the yo plant. The master must now exercise strict supervision over labourers to see that the bamboo pot is carefully slit down one side, the plant, with the earth undisturbed round its tender root, ge placed in the hole prepared for its reception. If this operation is too clumsily, the tip of the tap root is broken and the plant soon The plants are to be set in rows, as well for the sake of regularit for the convenient traversing of the plough, which is now to be ployed to clear the intermediate spaces of weeds, carefully avoi to trespass on the beds of the young trees. They must be wat every other day in sultry weather until the rootlets are establis and manured annually during the rains wtih four garden baskets of compost to each tree. This compost is a mixture of burnt e and cow-manure in the proportion of two-thirds of the former to third of the latter. When the plants attain the age of five years, until their fifteenth year, the compost should consist of equal par these materials. Manure should *always* be applied *on the sur* If holes were dug to receive it, the roots would be injured, and tree probably die. With *any* land the best system is *mulchin*

PLANTING BOOKS.

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pplication of litter and vegetable refuse to the *surface;* this is re's method of affording root protection from drought, also her iable method of applying manure. This tree is always bene- by manure whether situated on forest-land or on the plains. pt in the case of rich alluvial soils, the necessity of applying it rtain intervals has been found indispensable. After the fifteenth the trees require a more stimulating nutriment; the dung ought therefore, to be more than two or three months' old, and the ure should consist of two parts of it to one of burnt earth, apply- welve to sixteen baskets of it to each tree biennially. Some ers prefer to trench in the manure in a circular furrow around ree.

ie nutmeg-tree is naturally *dicœcious, i.e.*, male and female flowers orne by different trees. This fact constitutes a difficulty to lanter, as it prevents him from knowing accurately whether he anting male or female trees. The relative proportion of male female trees produced by the seed is undefined and seems to be esult of chance. The number of male trees necessary to be ned will depend entirely on the number of female trees on hand; above this number being superfluous should be destroyed. s generally considered that one male tree is sufficient to lise twenty female trees. Of course the sex can be ascertained n the young plant flowers, but that is rarely earlier than the fifth , frequently the sixth, and may be much later. Some very erienced growers pretend to be able to determine the sex when young plant is only a foot high, by characters presented in the form and venation, but there is great doubt about the constancy ie leaf formation, and it would not be wise for the young planter ely entirely upon his discrimination in this respect; it is a study ears, and the peculiarities vary with the locality.

s the trees advance in size the lower branches should be gradually ned away, so as to allow access beneath them; but beyond annu- regulating this growth, little or no pruning need be done; and en the trees have arrived at maturiry no pruning is required. At age of twenty years a plantation requires but little attention in way of weeding, as the trees, by the dense shade they themselves rd, prevent the growth of other plants on the ground beneath; previous to this age, weeds need to be well kept down, and until s natural shade is afforded, it is well to occasionally fork the und lightly near to the plant to keep it from baking hard, and s excluding air and moisture. The roots have a constant tendency eek the surface; care should be taken to keep them covered with ild.

Recently it was suggested that a rapid method of obtaining bearing nts would be to graft the two sexual forms upon strong seedlings. eral plants were operated upon (by the process of inarching); as stated, however, that the process was long and expensive, and dly applicable on the larger scale; also, that grafted plants, as a e, are not so long-lived as simple seedlings, and they do not make wth as fast, although they will certainly fruit at an earlier age. may be better for the planter to set two plants close together ead of one in the ultimate position, and then cut out the male ns which may be in excess, or transplant one of the females which y be in duplicate.

For the convenience of planters who wish to economise time in ablishing their gardens, it may be well to note that our Botanic rdens sell young stock plants; thus, at the Royal Botanic Gardens, nidad, young seedling nutmeg plants of one foot in height can be ught at the low price of six cents per plant; the price is about the ne in Jamaica.

Harvest.—Upon an average, the nutmeg-tree fruits at the age of en years, and increases in production till the fifteenth year, when s at its greatest vitality. It is said to continue prolific for seventy eighty years in the Moluccas. Generally, seven months elapse ween the appearance of the blossom and the ripening of the it. The yield is very variable, depending on soil, climate, and culture. The average produce in the fifteenth year of plantation has been estimated at five pounds of nutmegs and a pound and a quarter of mace; but under very favourable conditions trees have been known to yield six times that quantity per tree yearly. It is remarked, however, that some trees produce a greater quantity of fruit whilst others continue to give very little. It bears all the year round, but more plentifully in some months than in others. The great harvest may generally be looked for in the months of September, October, November, and December, and a small one in April, May and June. In some localities, as in Sumatra, it yields abundantly every other year.

All parts of this tree are very aromatic, but only those portions of the fruit called "Nutmeg" and "Mace" are sent into the market. The entire fruit is a species of *drupe*, of an ovoid form, of the size of a peach, and furrowed longitudinally. The nutmeg is the innermost kernel or seed contained in a thin shell, which is surrounded by the mace, and this again is enclosed in a tough fleshy skin, which, when ripe, opens at the tip and separates into two valves. Generally, when nutmegs are fully ripe they fall to the ground, and should be collected once or twice daily. Sometimes they are hooked off the trees with a long stick before they are ripe, but it is best to let them fall. When brought in the mace should be carefully removed, and the nuts placed on the floor of a dry room, or on perforated shelves through which the air freely circulates. They should be turned daily. Freshly gathered nuts should not be placed with those partly dry, but should be kept to themselves until a portion of their moisture has evaporated. To hasten the drying process, the nuts are sometimes deposited on elevated stages placed at a sufficient distance from each other to admit of the heat from a smouldering fire beneath, the perforations in the shelves being sufficiently small to prevent the smallest nuts from passing through. The heat should not exceed 140° F., because a sudden or inordinate degree of heat would dry up the kernels too rapidly, and its continued application produce fissures in them, or fermentation might be excited in them, which would increase their volume so greatly as to fill up the whole cavity of the shell, and so prevent them from rattling when put to this criterion of due preparation. The smoking-house is a brick building with a terraced roof, and the stage is placed at an elevation of ten feet from the ground, having three divisions in it for the produce of different months. The nuts must be turned every second or third day, that they may all partake equally of the heat, and such as have undergone the smoking process for the period of two complete months, and rattle freely in their shell, are to be cracked with wooden mallets; the blow should be struck on the top, not on the side of the nut, to avoid bruising, the worm-eaten and shrivelled kernels thrown out, and the good ones rubbed over simply with recently

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prepared well sifted, dry lime. They are now to be sorted into two or three sizes :—

No. 1 should number 60 to 70 nuts to the pound.
„ 2 „ „ 75 to 100 „ „ „
„ 3 „ „ 100 to 150 „ „ „

After this it is usual to again cover the nuts with quick lime—a whitened nut selling much better than one not treated. Finally, they are packed for transportation in tight casks, the insides of which have been smoked, cleaned, and covered with a coating of lime mixed with fresh water. If packed in chests the seams must be caulked to prevent the admission of air or water. A mode frequently practised in preparing nutmegs for the market is to dip the kernels in a mixture of salt water and lime, and to spread them out on mats for four or five days in the shade to dry. Thus prepared they are termed "limed nutmegs," and in some countries they are preferred. The lime is said to preserve the seeds from insects, but injures the flavour. The Chinese wisely prefer to import their nutmegs in the shells, in which they keep good for a great length of time. The shells constitute one-third of the total weight; thus in fifteen parts of the entire produce there are two parts of mace, five of shell, and eight of nutmegs. The process of "liming" was resorted to for the purpose of preventing the germination of the nuts after being shipped to their destination; but it has been proved that this process is perfectly unnecessary, and that simple exposure of the nuts to the action of the sun for a week is sufficient to destroy the vitality of the embryo. Immersion in milk-of-lime destroys many of the nuts; a second process of desiccation is also necessary. (*Journal of the Indian Archipelago*, v.p. 78.) The custom of "liming" nutmegs by the "wet" method is, however, so much in use, and the predilection of the spice so prepared is so strong in certain countries, that nutmegs exported from their native place in the unlimed condition are frequently limed in London to suit the markets of the countries to which they are ultimately destined. As a rule, Penang nutmegs are shipped from that place in their natural condition—unlimed.

The broken, worm-eaten, small nuts may be used for distillation of "oil of nutmeg." The yield of oil varies from 8 to 10 per cent. The *expressed* oil of nutmegs, called "nutmeg paste," is prepared by crushing *fresh* nuts. Broken or imperfect ones are generally used. They are placed in bags and submitted to hydraulic pressure between heated iron plates. The yield is from 20 to 25 per cent. It is at first liquid, but congeals on cooling into an unctuous, orange brown body of marbled or mottled appearance. It is imported into London, principally from Singapore, in oblong cakes of the shape of bricks, but somewhat smaller in size, enveloped in palm-leaves or "flag-leaves." Its odour is very agreeable, and its taste greasy and aromatic.

Mace is picked off the nuts to hand, and prepared for the market by drying it for some days in the sun. At first the mace is crimson or blood-red. It should be dried quickly in the sun, or it is l to mildew and spoil; but it should be kept until it assumes a yellow appearance, as mace showing the scarlet colour, alh perfectly dry, never sells well in the market. During the proce drying, and after a few months, it acquires the golden colour ferred by the dealer. Some growers flatten it by the hands in si layers, others dry it in double blades. In rainy weather arti heat is employed for drying it.

The fleshy outer covering of the nutmeg is used in the Indies for making a most delicious preserve by boiling it with su it develops a flavour peculiar to itself, which is much relishe epicures.

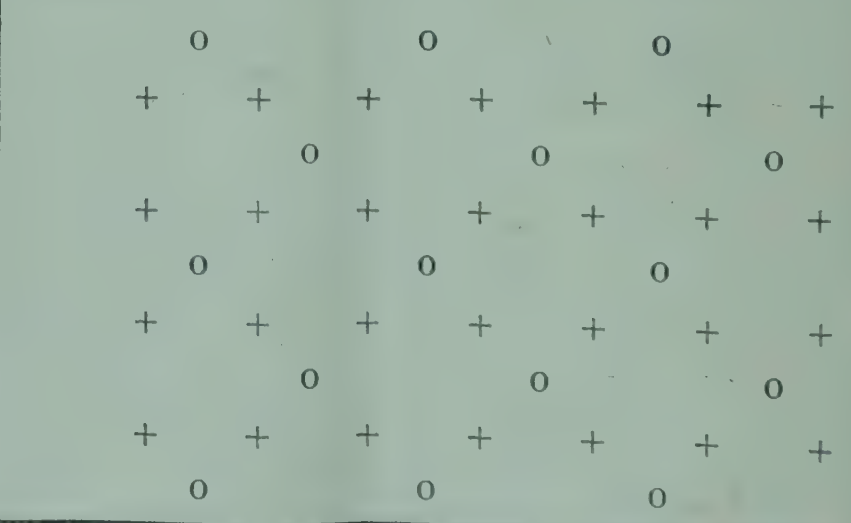
At one time the culture of nutmegs was almost entirely i hands of the Dutch, who took every means to monopolise growth of the plants and confine them to the three Banda mentioned above; but their attempts were partly frustrated pigeon called the "nutmeg-bird," or the "nut-eater," w extracting the nutmeg from its palpy pericarp, digests the mace, voids the nutmeg in its shell, uninjured: this falling in a suit situation, readily germinates. It is related that the Dutch use burn nutmegs when the crops were superabundant, in order to up prices.

LIBERIAN IN THE STRAITS.
III.

Draining, Manuring and First Blossom.

A very important matter in planting is a good system of drain In flat land this will not give much trouble; cut drains east and every five chains and small drains north and south every chain, dividing your plantation into blocks of five chains long by one c wide. In hilly ground, however, the drainage becomes much difficult; and if a planter does not know how to do it, he had b not drain at all. Much less harm can be done by leaving drai alone, than by a scheme which is both bad and wrong. Drain hilly land should be cut on a gradient not steeper than one in every 40 feet; if you cut them steeper, the rush of water wil into the land and wash and carry everything away. These dr should be cut not more than about a chain apart from each o The object of these drains in hilly land is to prevent the soil being washed away by the rain; if that is not done, the roots of trees would soon be exposed and the trees themselves gradu undermined until they also were washed down the hillside. In land we drain to get the water out of our fields, but there is no for this in hilly land, the water quickly enough rushes down the by itself; it is, therefore, more our object to keep the water on soil. If the drains are too steep, the water will pour down wit penetrating into the ground or benefiting the coffee; but if, on other hand, the drains are at an easy gradient, the water will satu the ground and the roots of the coffee will greedily absorb it all the trees will gain health and strength.

Besides this system of regular drainage, I would recommend w holes to be cut between each intermediate four trees, for insta like this:



The Wynaad and the Planting Industry of Southern India, by Francis Ford, Re. 1.

The Planting Directory of South India, Re. 1-8.

Tea Planting from Seed to Cup in Tamil, with English Translation. Re. 1.

Sketch History of the Planting History of Wynaad, by the late Adolphus Arthur Wright. Re. 1-8.

Science and Coffee, by the late Mr. Wm. Pringle, m.s.c.i., Re. 1-8.

Report of Observations of Injurious Insects and common Crop Pests during the year 1883, with methods of Prevention and Remedy, by Miss Eleanor A. Ormerod, F.R.Met.Soc., &c., Re. 1-8.

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These holes are about 2 feet square and are intended to catch the n water and to keep it until it has gradually been absorbed by the ound and surrounding trees. The holes will in course of time fill and then you can cut new ones between the intermediate four es which had been left undisturbed before. I have found this to as good if not better than any manure; anyhow, it is very ap and very effective.

But I don't mean to say by this that you should not apply manure sides having these water holes. If you depended on drains and ter holes alone to give sufficient nourishment to the trees to pro-ce a good crop and regular returns, you would soon find out that vas a fatal mistake. For several years the coffee tree has absorbed e nourishment out of the ground and this must be replaced.

We read in the Bible of the widow's cruse of oil which never led, and we naturally marvel at such a miracle; yet there are a mber of planters who expect their ground to perform the same nders, and are surprised when their coffee trees after a lapse of ars begin to show signs of decay and weakness, although they ve never thought of returning to the ground what their trees have ken out of it.

Your ground should be manured regularly every year, and the rlier you begin with it, the better it will be for the coffee.

There are very many ways of manuring, and I dare say they are l good; but, as I said before, you must know what you are about. have seen planters manure with bone meal and oil cake, and all nds of different artificial manure. I have seen the trees being rced to produce a crop of 8 to 10 pikuls and more an acre in one ar—and never again afterwards!

Mr. T. H. Hill, the pioneer planter of the Malay Peninsula and a cognised authority on coffee cultivation, writes (*Straits Times*, th June, 1893):

"Whilst there are many planters who disbelieve in what they are eased to call artificial manures, I would call their attention to the periments at Rothamstead, by which it has been proved to be acticable to grow the same crop on the same land for 30 or 40 ars in succession with artificial manures alone, and in instances e results, not a few, have equalled that of land yearly manured ith cake-fed farmyard manure at the rate of 14 tons per acre per nnum for the same term of years. These papers are open to the nsideration of all by the great liberality of Sir John Dawes and r. J. H. Gilbert. In comparing these examples with perennial ltivation like coffee, the value is very great, owing to the same op having been and continuing to be grown on the same land for a ng term of years. On the other hand, we find further corrobora-on starting later on, so far as I have been able to learn, only pub-shed in a more summarised form in the book published by M. eorge Ville, entitled 'Artificial Manure.' After looking carefully ver the formulas for manuring employed on Rothamstead, it is ost reassuring to find that the nearer the manures employed pproach to those advocated by M. George Ville, notwithstanding ne variety of the crops generally, the results are the most favour-ble; thus, by an independent source, proving the enormous value of ne work that has been done at Rothamstead to the whole agricul-ural community of the world. You will observe from the foregoing hat I am of opinion that high cultivation is necessary to produce arge crops and that the soil in itself is not rich enough to bear a uccession of large crops; this is so, and whilst nature has most chly endowed the Malay Peninsula with an extremely fertile climate, he soils, neither by analysis nor results without cultivation, are ound sufficiently rich to produce a succession of heavy crops with-ut skilled manuring and careful cultivation. When it is brought o notice that for each pikul of clean coffee it has taken nine pikuls f fruit to produce it, the desirability of high cultivation becomes at nce apparent. On looking back over a series of years of the crop eturns from different fields, it becomes plain that, for many years, have been removing a gross weight of from 4 to 5 tons per acre."

Too little and too much manure are both equally detrimental to he growth and development of the coffee tree. The tree must not e starved, but neither should it be forced to produce more crop than t can reasonably be expected to bear and to stand. The object of nanuring is to strengthen the tree by returning to the soil what has een taken from it, so that the tree will always get the nourishment which a strong plant requires to keep it healthy and vigorous. To chieve this object I would recommend:

(1) To changkol (hoe) the ground all round between the trees, but not nearer to the stem than the branches extend above the ground; generally the roots have spread under the ground just as far as the branches above and the object of changkoling the earth is to let the soil evaporate, to allow the superfluous gas to escape and to give the roots a fair chance to spread further out, and as a consequence the branches will follow too and gradually cover the whole ground from tree to tree. This being once achieved you have gone ahead a good deal more than you may probably be aware of, or than many experienced planters will admit. The roots of the coffee want shade and the tree will greatly benefit through this; the weeds, again, want light and sun to keep alive, and thus whilst benefiting the coffee, you deal at the same time the death-blow to the weeds, the mortal enemies of coffee.

(2) It takes, of course, several years before the branches of the coffee tree have developed so far as to cover the whole ground, and in the meantime I would advise covering the ground with lalang. This is very effective; I have used it myself with great success in old coffee which was at the point of starvation, and the coffee has recovered wonderfully. Lalang being spread on hilly ground prevents also the washing away of the soil. Many planters are afraid of the great risk of fire, as dry lalang, as everybody knows, will burn like straw if a match is put to it; but this danger only exists during the first few weeks, then the lalang having been exposed to rain, wind and night dew, has become so moist and rotten that it will be found quite impossible to burn it. As a fair day's task a cooly will cut 30 to 40 bundles of lalang of about 2 feet diameter.

(3) The application of manure is done in many different ways. Some planters cut a semicircle above the tree, about 3 or 4 feet away from the stem so as not to disturb the roots; others apply the manure in a hole cut between each four trees; others, again, supply it in the same manner as the water holes I have described above.

I make my coolies cut holes in a semi-circle round each tree as far away from the stem as the branches extend, but never nearer than 3 feet. These holes should not be less than 3 feet long and not less than 1 foot broad and 1 foot deep.

I mention this specially, because many planters are afraid to cut more than half a foot deep for fear of injuring the roots of the coffee. This, however is quite a mistake: you should work the ground up as deep as possible, certainly not less than one or two feet. If the ground thus worked up is thoroughly mixed with the manure, the desired effect on the coffee will have been effected, but not otherwise. It is astonishing to see how hard the ground is when you begin cutting holes as described above, and it will at once be evident to you that this ground will not allow the roots to spread, and that it is indispensably necessary to dig it up at least one or two feet.

Another part of my system of manuring is that I do not apply the manure to the trees at once; my coolies have to cut the holes first, and these holes remain open until after a few days of rain; it will do the coffee all the good in the world if these holes are filled with rain water—anyhow, you may be quite sure you cannot do the least harm to your coffee by letting them remain open for a few days. This system will enable you to examine every hole and to see whether it is of sufficient size; besides it has the effect of thoroughly working the whole of your ground over, admitting fresh air and allowing bad gas which has accumulated to escape, and, another important factor, it disturbs the nests of dangerous insects, who have been accustomed to consider your ground as their undisputed property and home, whence they could unmolested attack and destroy the coffee trees and their crop.

The best manure for coffee, in my opinion, is cattle manure. A good basketful applied to each tree and well mixed with the soil will be about the right quantity. A cartload is 30 to 40 basketsful and costs about 30 to 50 cents delivered on the estate. The manure should be applied shortly before the rainy season (on old estates, at least two months before the crop ripens, otherwise the crop will not get the benefit of the manure and the tree being weakened through the disturbance of its roots just at a moment when all its strength is required to ripen the crop will rather suffer than benefit through the application of the manure).

If all the above has been carefully observed, you have only to wait patiently, and after one or two days of a good and continuous shower of rain—a rain which everybody else calls a beastly and most annoying sort of rain—you will see something which will make your heart rejoice. The ground having been thoroughly saturated by the rain, you find on getting up, one fine morning, the whole of your plantation

one sea of snow-white blossoms—a sight worth seeing, but to a planter the realisation of three years' hard work, unceasing worry and care, endless troubles and difficulties. He then experiences a feeling of happiness and satisfaction and a heavy load is taken off his mind. There, at last, is the reward for his perseverance, his patience, his energy, his pluck, his time and care.

It is not necessary to be a planter to imagine the pleasure of such a moment. Here is a man who has staked all he possessed in a coffee plantation, he has cut and cleared the jungle, sown the seed, planted trees, laid out every road, traced every drain, built every house, and, what is more than the money he has risked, he has actually spent three or four years of his short life, a treasure which no money in the world can bring back to him—every tree on the estate is a part of his own life, and there he sees for the first time the dream of his ambition realised. Well, but there is many a slip 'twixt the cup and the lip, and I believe it was Solon who said that no man could be counted happy before his death; and so, I should say, no planter can depend upon his crop before he had actually harvested it and sold it and placed the proceeds to his credit at the Bank.

But don't let me conclude this chapter with gloomy anticipations and probable possibilities, but, on the contrary, let us hope that there will be a good crop. A fine blossom is a fine sight: it gives new hope to the planter, and it is this hope, the expectation of the nice and good things which we always hope may yet be in store for us, which keeps us going, makes us undergo endless hardships and deprivations in our life, and which, after all, so very seldom are realised.

(*To be continued.*)

GOOD FOOD—GOOD DIGESTION—GOOD CHEER.

"Moral character is located in the stomach," says a recent writer. He is wrong; but there is a shade of truth in the idea he throws out. Napoleon was often willing to trust others to look after the arms and ammunition of his armies, but the commissary department he looked after himself. The bravest men won't fight unless they are fed, he said. Nor will they.

That's why we are not surprised to find Mr. William Jones saying that at a certain time he was in a low and desponding state of mind. He gives the reason himself in three words, "I was weak." And why was he weak? He explains that, too.

"I was always strong and healthy," he says, "up to January, 1892. Then I had a severe attack of influenza, followed by congestion of the lungs. After this I never got up my strength, and I was low, weak, and desponding. I had a bad taste in the mouth, my appetite was poor, and every morsel of food I took gave me intense pain at my chest. After every meal I was sick, vomiting a green filthy fluid, which was often mixed with blood."

We shall have no trouble to understand this especial phase of Mr. Jones' illness. The green, filthy fluid was mucus mingled with bile, and the blood came from some of the small blood-vessels, which were ruptured in retching and straining. The bile was out of its place; that's why nature tried to get rid of it. But how did it get out of its place? Wait a bit; we'll come to that presently.

"I had," continues our friend, "dreadful attacks of cramp in the stomach, and the gnawing pain was well nigh unbearable. At night I got but little rest; sometimes none at all—cold, clammy sweats breaking out all over me, and in the morning I had barely the strength to raise myself. When I went out of doors my breathing was so bad I had to step and rest every few yards.

[The cramp was caused by the gas arising from the fermented food, and the short breathing by a partial paralysis of the nerves, created by the poisonous acids which had entered the blood from the stomach. The nerves were also enfeebled by the enforced starvation—like all the rest of his body.]

"As month after month went by," says Mr. Jones, "my relatives and friends could see me wasting away and apparently sinking into the grave. I became as *thin as a lath*, and you could see through my hands. My legs and face were attenuated to the same extent, and as for my muscles they seemed to be all completely gone."

[Now, inasmuch as when people waste away the fat goes first, and the muscles and other tissues last, you can perceive how far advanced in a decline our good friend really was.]

"Yet I continued in this condition," he says, "altogether for seventeen months. I was attended, off and on, by four doctors, their medicines had no good effect on me. I also used lung to and cod-liver oil, but to no purpose.

"In June of this year (1893) I first read of Mother Seigel's Sy and my wife got me a bottle from Mr. Cole, the grocer, at Grosm After taking it a few days I was relieved, my appetite improved, the sickness (the nausea) left me. Keeping on with the S I gained strength every day, and in a month I could walk and and was soon as well and strong as ever. Your remedy saved life, and I wish others to know it. You can refer enquirers to (Signed) William Jones, Bridge Inn, Kentchurch, Pontrilas, H fordshire, October 31st, 1893."

The case of Mr. Jones and his recovery as set forth by him well known in his neighbourhood. His wife says that one of doctors told her that all hope was gone. But happily the do was mistaken, as the wisest of us sometimes are. His disease chronic inflammatory dyspepsia, and that only. But that enough, mercy knows, and a fatal end to it was not far off w Mother Seigel's Curative Sprup had a chance to do its hea work.

Our friend is cheerful now because he is strong; and he is st because this remedy set his digestion to rights.

MARKET REPORT.

COFFEE.

Messrs. R. J. Rouse & Co.'s Weekly Coffee Report (March 11, 1898) say Public sales have been on a small scale this week, but in spite of thi demand proved slow except for desirable parcels which were easily posed of.

Barely 900 bags East India were offered, chiefly Coorg, the finer gr of which realised very full prices whilst the remainder sold steadily.

The light supplies of Central American catalogued met poor compet at rather under previous rates, whilst a good proportion had to be bo in.

A weak tendency has prevailed in the Terme market this week o to a further increase in the Brazilian receipts, and quotations sh decline on the week of 1/- to 1/3.

Messrs. Wm. Jas. and Hy. Thompson's Report of the Colonial Market the Week ending March 9th, 1898, says:—Bank rate 3%. Bor Exchange closes at 1s. 4d. Brazil Exchange 6⅜d. Rupee p 3½% 63½. Silver 25⅛d. per oz.

This market has ruled flat throughout the week, and importers h anxious to sell, all kinds are lower, except East India, of which the su was small: London cleaned Salvador and Guatemala show a declin fully 3s to 5s; Costa Rica is about 1s lower except fine.

Daily receipts averaged 10,600 bags in Rio, and 11,300 bags in Sant

Futures have been flat, and at the close show a decline of 1s to 1 per cwt., viz.:—Good average Santos in Havre, May delivery, fcs. 3 in Hamburg pf. 29¾, and No. 7 low ordinary Rio in New York $5.40.

To-day's London official quotations are:—

	March	May	July	Sept.	Dec.,
Santos ...	28/9	29/3	29/6	30/-	30/6

We quote:—

Ceylon, mid. to good mid.	95/@107/	Costa Rica, mid. to fine...	77/@
Do. small to low mid.	80/ „ 93/	Do. ord. to low middling.	53/ „
East India, mid. to good mid...	77/ „ 93/	Jamaica, good to fine ord.	43/ „
Do. small to low mid.	62/ „ 76/	Do. greenish to fine colory...	70/ „
Guatemala, mid. to fine...	74/ „ 103/	African ...	29/ „
Do. good ord. to low mid...	55/ „ 70/	Columbian, ordinary ...	38/ „
Salvador, good ord. foxy greenish...	43/ „ 46/	Do. good ord. to low mid...	45/ „
		Do. mid. to fine...	73/ „

Receipts in Brazil to 9th March compare as follows with prev years:—

	1897-98.	1896-97.	1895-96.
	Bags.	Bags.	Bags.
Rio	3,379,000	2,723,000	1,903,000
Santos	5,231,000	4,263,000	2,690,000
	8,610,000	6,986,000	4,593,000

Auctions :—

5 casks and tierces 6 barrels 3 bag Plantation Ceylon.	@	17/	@	116/
7 bags East India. 660 bags Coorg	„	60/	„	104/6
310 bags Neilgherry chiefly sold.	„	55/	„	103/
17 bags Wynaad	„	71/6		
4 bags Costa Rica, part London cleaned, chiefly sold.	„	33/	„	109/
6 bags Guatemala „ „ „ ...	„	70/	„	85/6
7 bags Salvador „ „ „ ...	„	46/6	„	84/
4 bags Vera Paz „ „ „ ...	„	36/	„	108/
0 bags Columbian „ „ „ ...	„	27/	„	96/6
0 bags Peruvian, part London cleaned, bought in.				
0 bags La Guayra bought in.				
3 bags Guayaquil bought in.				
0 bags Ecuador	„	31/	„	—
4 bags Venezuelan	„	67/	„	73/
0 bags Lahat bought in.				
9 bags Nyassaland partly sold.				
3 bags Mexican part sold	„	87/6	„	—
5 bags Liberian Ceylon bought in.				
5 bags African Liberian	„	15/	„	30/
7 packages Mocha bought in.				
1 tierces 596 barrels 31 bags Jamaica, part London cleaned, partly sold	„	26/	„	59/6
30 bags Imitation Java bought in.				

On Quay Terms :—

01 bags Rio bought in.
00 bags Maragogipe bought in.

EUROPEAN IMPORTS AND STOCKS.

	IMPORTS. In February.		DELIVERIES. In February.		STOCK. 1st February.	
	1898.	1897.	1898.	1897.	1898.	1897.
	tons.	tons.	tons.	tons.	tons.	tons.
	44,960	41,310	36,700	30,800	185,310	116,590
oat from the East to Europe ..			...	...	3,640	1,870
„ „ Rio to Europe ...			...	...	4,500	4,620
„ „ Santos „ ...			...	...	18,000	16,180
Stock and Afloat ...				...	211,450	139,260
„ „ on 1st Jan. ...					211,510	134,170

THE UNITED STATES.

	1st March. 1898.	1897.
Stock	57,120 tons	29,710 tons.
Afloat	23,180 „	27,180 „
Visible Supply	80,300 tons	56,890 tons.
Value No. 7	6¼ cents.	9⅝ cents.

	February. 1898.	1897.
Imports	26,060 tons	27,650 tons.
Deliveries	22,650 „	24,880 „

BRAZIL.

Stocks 28th February.

	1898.	1897.
Rio	279,000 bags	243,000 bags
Santos	809,000 „	398,000 „
Total ...	64,000 tons	37,710 tons

Receipts 1st July, 1897, to 28th February, 1898.

Rio	3,304,000 bags
Santos	5,142,000 „

Exported 1st July to 28th February.

	1897-98.	1896-97.
Rio to Europe	1,040,000 bags	660,000 bags
„ the States, &c.	2,130,000 „	1,650,000 „
Total from Rio ...	3,170,000 bags	2,310,000 bags
Santos to Europe	3,575,000 bags	2,730,000 bags
„ the States	945,000 „	1,100,000 „
Total from Santos ...	4,520,000 bags	3,830,000 bags

WORLD'S VISIBLE SUPPLY.

	28th February. 1898.	1897.
Europe	211,450 tons	139,260 tons
United States ...	80,300 „	56,890 „
Brazil	64,000 „	37,710 „
Total ...	355,750 tons	233,860 tons

January 31st (1898), 356,750 tons (1897), 234,470 tons

JAVA.

THE GOVERNMENT CROP.

1898.	1897.	1896.
128,011 bags*	360,000 bags	347,691 bags

* Latest Estimate.

SUMMARY COMPARED WITH LAST MONTH.

European Stocks	8,260 tons	Increase
„ Visible	60 „	Reduction
United States Stocks ...	590 „	„
„ Visible ...	2,530 „	Increase
Brazil Stocks	3,230 „	tons Reduction
World's Visible	760 „	„

TEA.

Messrs. Gow, Wilson and Stanton's Indian, Ceylon, and Java Tea Report, dated March 11th, 1898, says :—

QUANTITY BROUGHT TO AUCTION IN LONDON

FROM 1ST JUNE TO DATE.

	Indian.	Ceylon.	Java.
1897-1898...	1,328,871 packages.	928,422 packages.	32,611 packages.
1896-1897...	1,369,718 „	878,769 „	32,180 „

32,393 *pkgs.* INDIAN
19,476 „ CEYLON
2,122 „ JAVA
} Total 53,991 packages were offered in public auction this week.

Countries outside the United Kingdom took nearly 9,000,000 lbs. more Indian and Ceylon Tea last year than in 1896. Progress in these external markets has been not only steady but rapid, viz. :

	1897.	1896.	1895.	1894.	1893.	1892.
Indian..	22,198,810	19,206,172	16,815,323	14,149,904	14,027,129	10,029,328
Ceylon..	28,949,314	23,465,733	19,923,803	14,563,082	13,138,544	9,583,285
Total lbs.	51,148,124	42,671,905	36,739,126	28,712,986	27,165,673	19,612,613

In spite of the relief afforded the London market by an external demand for 51,000,000 lbs. in a year, prices are unusually low. Where would they have fallen but for this relief? Though present quotations will doubtless lead to further development, no effort must be relaxed if these markets are to become permanent users of our Tea.

Export of Indian and Ceylon Tea in lbs. to places outside the United Kingdom from 1st Jan. to 31st Dec.

INDIAN.

	1897.	1896.	1895.	1894.
Re-exports from U. K. ...	5,496,539	4,399,640	3,973,531	3,551,282
Transhipments from U. K. ...	3,449,256	3,146,548	2,330,591 *abt.*	896,025
*Direct Exports from Calcutta.	13,253,015	11,659,984	10,511,201	9,702,597
Total lbs. ...	22,198,810	19,206,172	16,815,323	14,149,904

CEYLON.

	1897.	1896.	1895.	1894.
Re-exports from U. K. ...	10,502,178	8,496,663	7,147,086	5,166,020
Transhipments from U. K. ...	2,153,501	1,482,619	983,712 *abt.*	370,414
*Direct Exports from Ceylon.	16,293,635	13,486,451	11,793,005	9,026,648
Total lbs. ...	28,949,314	23,465,733	19,923,803	14,563,082

* *Exports from India and Ceylon direct to N. America as shown in Calcutta and Colombo figures have been deducted, as they are doubtless included in transhipments from U. K.*

Indian. The low range of prices appears to have given sufficient confidence to buyers to induce them to operate to a rather larger extent, although no actual recovery can be quoted, and the 32,393 packages were mostly sold without change in quotations.

Week's av. of Tea sold on Garden Account, 1898, 20,005 pkgs., av. 7·85d. 1897, 19,601 pkgs., av. 9d.

	1898.		1897.		1st June to date 1897-8.		1st June to date 1896-7.	
	Pkgs.	Price.	Pkgs.	Price.	Pkgs.	Price.	Pkgs.	Price.
Assam ...	8,374	9·25	8,587	10¼	468,340	9·94	477,137	10·20
Cachar & Sylhet...	5,433	6·52	7,565	7½	259,242	6·96	245,109	7·43
Chittagong ...	154	5·75	95	7¼	5,537	7·15	3,218	7·53
Chota Nagpore ...	—	—	67	5¾	1,640	5·03	1,640	5
Darjeeling ...	820	9·33	377	1/2½	64,540	11·02	57,915	1/·54
Dooars ...	3,523	6·93	2,638	8	120,904	7·48	123,025	7·55
Kangra, &c. ...	179	5·25	—	—	7,963	7·17	5,414	7·19
Neilgherry ...	324	6·25	—	—	5,914	6·96	3,698	6·98
Terai ...	97	5·50	176	7½	19,976	7·19	13,303	7·21
Travancore ...	1,101	6·07	96	8	28,022	6·41	25,273	6·97

Total sold on Garden Account 1st June to date 1898, 981,587 pkgs., av. 8·77d. 1897, 955,723 pkgs., av. 9·14d.

Comparative prices of Indian Tea in London:—

		1898.	1897.	1896.	1895.
Dust.	(Fair ordinary, dark liquor) ...	3½d	4¾d	4¾d	4¾d
Fannings.	(Red to brown, strong rough liquor) ...	3¾d	4¾d	4d	5¼d
Broken Tea.	(Brownish to blackish, strong liquor) ...	6d	7d	6d	7¾d
Pek. Soug.	(Blackish greyish, useful liquor).	6¼d	7½d	6¾d	8¼d
Pekoe.	(Greyish to blackish some tip, useful liquor) ...	7d	8¾d	8d	
Pek. Soug.	(Blackish greyish, inferior liquor).	4¾d	5½d	5¼d	
Pekoe.	(Blackish, greyish, some tip, inferior liquor) ...	5¼d	6¼d	5¾d	

Ceylon. The sale was small, only 19,476 packages being brough ward. With this limited supply buyers were more ready to oper present low rates, which appear at length to have attracted some tion to the unusually good value now obtainable.

Average for week 7·12d., against 8¼d. same period last year.

Ceylon Tea sold on Garden Account 1st January to date 227,298 pkgs., av. 7·70d. 1897, 211,999 pkgs., av. 8·12d.

Comparative prices of Ceylon Tea in London:—

		1898.	1897.	1896.
Pekoe Soug.	(Ordinary leaf; fair liquor) ...	5¼d	6½d	6¼d
Pekoe	(Ordinary leaf, little twist; fair liquor) ...	6½d	7½d	7½d
Pekoe Soug.	(Rather bold leaf; indifferent liquor) ...	4½d	5¼d	5d
Pekoe	(Somewhat bold leaf; indifferent liquor) ...	5d	6d	5½d

Java. 2,122 pkgs. were brought forward and mostly disposed steady prices. 247 pkgs. "Perbawattee" averaged 10d. per lb. pkgs. are advertised for sale during next week.

PUBLIC SALE OF SOUTH INDIAN TEA.

(Average for all India 8*d.*) *March 4th.*

Garden.	Total.	Average.	Broken Org. Pek. or Flowery Pekoe.		Pekoe and Unassorted.		Broken Pekoe.		Pekoe Souchong.		Broken and Souchong.		Fannings, D and Vario	
	Quantity	Price.	Quantity	Price.	Quantity	Price.	Quantity	Price.	Quantity	Price.	Quantity	Price.	Quantity	P
South Wynaad ...	**128 p**	**7·20**												
Chulika ...	50 p	6¾	10½c	9	13	†5¾	10½c	10¼	8	5¼	...	...	9	3
Kanam Chera Est...	78 p	7½	47½c	†8¼ 10	10	6¼	...	...	8	6	7	5½	6½c	†
Neilgherry ...	**250 p**	**6·32**												
New Hope ...	190 p	6¼	40½c	9	34	7½	...	...	40	5¾	47	5	29	
Pykara Falls ...	60	6½	...	...	24	7½	6	†6	16	5¼	...	...	14	
Travancore ...	**1726 p**	**6·06**												
Belford ...	179 p	5½	...	...	107 p	5 5¼	63½c	6¼	...	...	6½c	4½	3½c	
Bonaccord ...	395 p	5½	...	...	174	†5¼	108	6½	50	5	...	...	63 p	
Braemore ...	39 p	6	...	...	14	5¾	10	8	...	...	4	5	11½c	
Cheroot Mallay ...	32½c	5¼	...	...	23½c	5¼	...	...	...	...	9½c	4¾	...	
Home ...	131½c	5¼	...	...	71½c	5	48½c	6¼	...	...	8½c	4¼	4½c	
Isfield T Co ...	64	5½	...	...	36	†5¾	28	5¼	...	...	...	...	...	
Kanan Dev Hil CA.	125½c	8¾	4½c	10	32½c	8¼	88½c	8¾	1½c	7½	...	...	...	
„ Parvithi...	172½c	6¾	61½c	7½	52½c	6¾	...	...	59½c	6	...	...	...	
Poonmudi ...	253 p	6	...	...	128	5¾6	59	6½7	34	5 5¼	...	...	32½c	
Sth Trav T C Ven F.	140	6¾	53	7¾8¼	66	6 6¼	...	...	21	5¼	...	...	...	
„ „ G.	62 p	6	...	...	52	6¼	...	...	...	...	...	...	10½c	
„ „ H.	134 p	6½	55	7 8	64	6 6¼	...	...	...	...	...	...	15½c	

(Average for all India 7·85*d.*) *March 11th.*

Neilgherry ...	**324 p**	**6·25**												
New Hope ...	185 p	6¼	50½c	8	60	6¼	...	...	75	5½	...	...	...	
Pykara Falls ...	69	6¼	...	...	24	6½	13	7	10	5¾	...	...	22	†
Seaforth ...	70½c	6¼	21½c	7¼	33½c	†5¾	...	...	16½c	5¾	...	...	...	
Travancore ...	**1101 p**	**6·07**												
Arienkow ...	44 p	5¾	...	...	16	5½	13 p	6¾	14½c	5	...	...	1	
Bonaccord ...	198 p	6	...	...	71	6	81½c	6¾	22	5	...	...	24 p	3
Elderslie ...	49	5	...	...	20	5	7	6	22	4½	...	...	...	
Glenmary ...	180 p	7	107	7⅛8	33	6¼	..	...	...	...	...	...	40 p	3
Invercauld ...	48	6	...	...	23	6	15	6½	8	5¼	...	...	2	
Kinmylies ...	63½c	5½	60½c	5½	...	...	...	...	3½c	4½	...	...	...	
„ ...	49½c	5½	14½c	† 7	27½c	5	...	...	6½c	4½	...	...	...	
Mahendragherry ...	100½c	5¾	95½c	5¾	...	...	...	...	5½c	4½	...	...	2½c	
„ ...	80½c	5¼	14½c	6¾	57½c	5	...	...	7½c	4½	2½c	3¾	...	
Merchiston ...	97 p	6	29 p	6½6¾	43	5¾	20½c	6½	...	...	...	...	5½c	
Stagbrook ...	115	6½	45	7 8	33	6¼	...	...	29	6	...	...	8	
Travancr Est C P...	78	6	...	...	30	5½	48	5¾6¾	...	...	...	...	...	

Teas marked thus † are last of the Seasons.

PLANTING OPINION.

A WEEKLY JOURNAL

WRITTEN BY PLANTERS FOR PLANTERS.

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SUBSCRIPTION.—Advance Rates: Yearly, Fifteen Rupees; Half-yearly, ght Rupees; Quarterly, Five Rupees, and Monthly, Two Rupees, including stage. Single Copies, Eight Annas.

ADVERTISEMENTS.—From the 1st October, 1897, the charge for e advertisements will be: 4 as. per line for the first, 3 as. for the second, d 2 as. for the third and succeeding insertions. Five-line advertisements m Subscribers will be inserted for three issues for one rupee; non-Subibers will be charged two rupees.

DOMESTIC OCCURRENCE.—The fee for inserting a domestic currence will be *One Rupee* for each insertion, payable in advance.

N.B.—Remittances should be sent to the Manager, "Planting Opinion," planade Row, Madras.

IMPORTANT NOTICE.

The Business Offices of this paper having now been moved to Madras, all remittances should be made payble to the Manager of *Planting Opinion*, 11 and 12, econd Line Beach, Madras, who will also attend to all dvertisements, &c.

Letters to the Editor should be addressed to Coonoor, s usual.

SEASON REPORTS.

NOTICE.

TO OUR SEASON REPORTERS.

Please post your next reports to reach Madras on Friday, the 15th April, 1898.

Season Reports should be sent to the Printers, Messrs. ADDISON & Co., direct, and not to *Planting Opinion* Office.

Nellampatty (British).

6th April.—Weather.—No rain yet; several times it has seemed as if rain would fall in a few minutes, but it has held off, and now there are very few clouds about at all. Thunder has been frequent, sometimes fairly near too. *Crops.*—Spike holding out wonderfully, but it can't do so much longer. *General Health.*—Fair: fever prevalent.

Coorg.

POLLI BETTA, 31*st March.*—Good rain out Siddapur way beyond the Club on Tuesday. Also out east. Central parts got little or nothing. Cleared up yesterday again. No more rain can be looked for till next Sunday, Monday and Tuesday. *Crops.*—Spike still holding out. There has been very little burning. *Public Health.*—But little improvement. *Interesting Items.*—Volunteer Camp at Mercara and Inspection on 29th. Dinners, balls, races and general hilarity till 2nd proximo.

Nilgiris.

KOTAGIRI, 6*th April.*—No rain in March, except 0·09 in. on the 4th; rainfall to end of first quarter 7·12 in. against average due 7·19 in. Spike of main blossom is forward, for which early rain is wanted. Moisture is also needed on first show on places that had heavy rain and a good blossom out in February. Generally speaking, most estates can wait comfortably for some little time yet, and some will be all the better for deferred wet weather. It worked up for rain at the close of March for many days every afternoon, but the high east wind now prevailing has dispelled all signs of early moisture to come. Promise is very good if rain does not fail.

KULLAKAMBY, 7*th April.—Weather.*—No signs of rain, and the heat increasing. It is hoped the full moon may usher in a

change of weather, or prospects will look gloomy. *Crops.*—Badly in want of rain. Spike holding out fairly well, but a continuance of this heat and dry weather will prove too much for it, especially where shade is insufficient. *General Health.*—Fever and influenza still going about. *Labour.*—Sufficient for the work in hand. *Interesting Items.*—Jungle or scrub-fires very frequent; some parts of the district have been burnt so thoroughly that there is not a blade of grass or green scrub visible for miles.

Coonoor.—*7th April.*—It is working up again gradually for rain, though the wind has been very high this last week. Except on the very lowest estates, coffee is standing the drought very well; spike is being well developed, and timely rain will bring out and set a first-rate blossom. Tea is not flushing extra well. It wants rain very badly indeed. Health at present indifferent. Badaga labour scarce owing to their sowing their fields with their everlasting sámi (millet). Nominally this grain is ridiculously cheap, but owing to the increase in Badaga population, it is most difficult to buy it in the open market.

Nellakotta.—*6th April.*—*Weather.*—From 25th March to 2nd instant rain came up every afternoon to N. and N. W., but none fell here, though heavy showers fell at Sultan's Battery, about 6 inches distant in a bee line. This probably means another fortnight without rain. Over our feelings, and the way we express them, I had better draw a veil. Blazing hot weather at present. *Crops.*—Crop here is on the knees of the gods. Spike is holding out well, but it must necessarily suffer to some extent from this continued drought. Oh the pity of it! for there is a splendid show of spike all over the district. *General Health.*—Every one is out of sorts from this continued suspense and the trying weather. A shower of rain would do us, physically, as much good as it would do the coffee. Some fever amongst coolies. *Labour.*—Sufficient for hot weather work.

NOTES.

Keeping seed. Romanes showed that seeds could be kept a year or more in a vacuum without detriment to them, and it has also been found that when sealed in vacuum tubes they do not exhale nitrogen or carbonic acid. Professor Dewar and Mr. Horace Brown have demonstrated that seeds can be submitted to a temperature as low as that of liquid air (180° below zero Centigrade) for 100 hours without impairing their power of germination.

Leaf-disease in Travancore. A South Travancore correspondent brings to notice the fact that, despite "Nitric Acid's" contentions, leaf-disease attacks coffee in different ways according to the particular district affected. "I agree with him," writes our correspondent, "about nitrates being a great help during leaf-disease, but his premonitory symptoms are, down here, conspicuous by their absence. Here it takes coffee apparently in its prime."

Measuring an acre. Though most of our readers find it perfectly easy to measure an acre of land by the simple way of figuring out the square root of the total number of square yards it contains, *i.e.*, 4,840, the following notes may be useful for ready reference:—Five yards wide by 968 yards long contains one acre; 10 yards wide by 484 yards long contains one acre; 40 yards wide by 121 yards long contains one acre; 70 yards wide by 69½ yards long contains one acre; 80 yards wide by 60½ yards long contains one acre; 60 feet wide by 726 feet long contains one acre; 110 feet wide by 397 feet long contains one acre; 130 feet wide by 363 feet long contains one acre; 220 feet wide by 181½ feet long contains one acre; 440 feet wide by 99 feet long contains one acre.

South Indian Teas. Messrs. Arbuthnot & Co's Monthly Market Report, dated London, 11th March, says:—

About 1,500 pkgs. were included in the catalogues, bringing 6½*d.* p. lb. opposed to 6¾*d.* p. lb. for 5,648 pkgs. in January last. Quality on the whole was not very attractive, and as the supply of ordinary kinds from other producing countries is rather plentiful, prices for the most part were easier. Among the Travancores, Kudawa Karnum, Atchencoil, Wallardie, Venture, Stagbrook and Carady Goody sent useful shipments, and there was an invoice from Pykara Falls, Neilgherries, possessing fair flavour, also from Perindotty, S. Wynaad, but the others generally call for no special notice.

Our readers will probably recollect the very poor prices obtained until lately by the Perindottty (Wynaad) estate. The improvement noted is, therefore, all the more gratifying as showing what improved management can effect.

Shadeless shade-trees. With reference to "Evergreen's" query *re* the deciduousness of *E. lithosperma*, we insert the following remarks from the usually well-informed Coorg correspondent of the *Planter*. Of course the use of shade trees varies according to district and elevation:—"A stranger visiting coffee estates at this time of year would be struck with the number of leafless shade trees that are to be seen in them, and would, I fancy, be surprised that trees of this descriptiou should be retained as shade trees when they become devoid of leaf at about the hottest time of the year. But the primary object of shade is to keep down borer, and so what has got to be looked to is that such trees should be provided as will be in full leaf during the borer incubation periods, which is, I believe, about November, December and May. It is for this reason that trees which lose their leaves at the beginning of what is called the cold weather are of no utility in checking borer. The trees which are now leafless will all be in leaf again before May, and are, therefore, some of the most desirable kinds of shade trees. Not a very high temperature is required for the hatching of borer eggs, as they have been found to hatch out in the shade of a verandah of a bungalow."

The Odessa market. For some unexplained reason, or perhaps for no good reason at all, writes the *Pioneer*, mercantile enterprise in India has greatly neglected the very promising market for Indian produce which seems to exist at Odessa. Such goods as tea, coffee, and jute are quick to make their way in new markets if properly pushed, but though the more alert merchants of Ceylon export large quantities of tea to the Black Sea, Indian tea exporters have so far left this market unexploited. Freights for Indian produce by the Volunteer Fleet steamers which run to Odessa from the Far East rule very low, and the shipowners, we are told, are keen to do more business. Volunteer Fleet steamers call at Colombo regu-

larly and at ordinary times—that is to say when there is no plague in India to raise quarantine difficulties—at Cocanada also. It certainly seems a pity to see steamers which are capable of carrying thousands of tons of Indian goods to Russia sail to Odessa with perhaps only a few hundred tons of tea or coffee from Ceylon, and a little castor-oil seed from Cocanada. There is a large jute factory at Odessa, and most of its jute is supplied from India, though a small quantity of the best sorts is sent from Resht in Persia. In this direction, as in many others, there appears to be an opening for Indian merchants. Mr. J. H. Frontmann is the largest dealer at Odessa in Ceylon and Indian teas, and a British subject, and he may be addressed by anyone in India desiring to make further enquiries.

China's struggles. Messrs. Davidson & Co., the well-known tea machinery manufacturers, are at present, we learn from a Ceylon contemporary, very busy supplying tea machinery to various parts of the world. For instance, we hear that they are about to supply three large rollers and other machinery to the order of a Russo-Chinese Syndicate, which is about to establish an immense factory in the heart of China, some distance up the Yangtse river. This machinery will all be erected by Messrs. Davidson & Co's assistants, and it is probable, we understand, that Mr. MaGuire may himself be sent to supervise the work, as he has been called upon to hold himself in readiness to leave for China or any other part of the world at a few days' notice.

Messrs. Davidson & Co. have also received a large order from the Russian firm of Popoff Bros., to supply about £6,000 worth of machinery and material for the equipment of a factory on their experimental tea estate in the Caucasus. There are three estates there—one belonging to the Russian Government, another to a Moscow firm, and the third to Messrs. Popoff Bros. This last consists of 250 acres, and Messrs. Davidson & Co. have been ordered to fully equip a first-class factory for it. They are therefore despatching from Belfast rollers, witherers, and driers, as well as sifters and cutters; so that the experiment of growing tea within the Russian dominions is not to be hampered through lack of adequate machinery. In all probability the work of erection will be carried out under the personal superintendence of Mr. Harry Davidson, who was recently in Ceylon.

Quick method of tree propagation. Though well-known perhaps to some of our readers under the name of "Gootee" propagation, the following description will be read with interest by those unacquainted with the process :—

"There are many people who have in their garden a favourite standard fruit-tree of some kind,—be it apple, plum, pear or any other fruit,—which they are inclined to think is a much better variety of that particular fruit than anything else they have seen. Now if they bud a stock from this tree, it will be some years before they get any result ; while if cuttings are taken, this is a method required still longer. It very often happens that on these trees there are some boughs which hang down a bit and which get in the way sometimes, and if such a bough does exist, which the owner thinks could be spared from the tree, and it happens to be of a decent shape, there is no reason why it should not be turned into a tree on its own account, to do which it is only necessary to follow this simple plan. First decide on your bough, and then on what height (according to its length) you would like your tree to be, and then, in the spring, at the spot you think suitable, take off a ring of bark about three inches or four inches wide ; a small quantity of good soil should then be put in position round the part from which the bark has been taken, by tying round it a piece of matting or sacking in such a manner that it cannot drop out. This should be kept moist during the summer (an oil-can filled and hung up close by, and connected with the matting or other material by a piece of soft string or wool, will do this with very little trouble), and roots will soon form in the soil which has been placed there. In the autumn the bough may be cut off just below the spot which has been so treated, pruned into shape, and planted, and in the following season it will bear fruit."

Erythroxylon coca. I read with interest, writes a correspondent to a Calcutta exchange, your article on the revival of attention to the cultivation of *erythroxylon coca* which is known to grow on these hills. Several bushes existed in the Burliar garden, a subtropical Government Garden maintained for the growth and acclimatisation of the fruits of the archipelago and the vegetable products of the plains. It lies at an elevation of 2,500 feet above sea level, and possesses a rich forest soil [*Possessed ;* the soil is now principally hard sub-soil, and almost impossible to dig.—Ed.] but a deadly malarial climate. It is certain that coca will thrive in many parts of Southern India, and may be easily propagated from seed, but it is doubted whether it will be probable for the European planter to grow it on a large scale. Vast tracts in South America are cultivated wtth the plant for the purpose of manufacturing the valuable alkaloid *cocaine,* but the market price of the alkaloid fluctuates so largely that planters have no confidence in the price. One time *cocaine* fetches 2*s.* 6*d.* grain, another it falls to 7*d.* and lower. Writers on economic products are cautious in their advice to grow coca commercially, and wish the popular reports as to the profitableness of the trade to be freely discounted. Some years ago the Government Genealogist analysed samples of leaves of coca grown at Burliar, and succeeded in obtaining the alkaloid in a crystalline form. It was used by a Madras ophthalmic surgeon with complete success in some of his operations. Another doctor suggested that *cocaine* should be added to the ingredients used in the manufacture of cough lozenges, because he found that the chewing of the leaves gave relief in cases of spasmodic bronchial coughs. The experiment above referred to showed that ½ per cent. of the alkaloid could be extracted from the leaves grown at Burliar.

A bug fungus. Amongst the enemies of the coccus, says the *Madras Times,* is one discovered lately in the Southern Continent, and another parasitic fungus, of an almost identical order, which obtains and is largely employed in America, known scientifically as Microcera Coccophila, and vulgarly as "redbug pest or scale tubercle." We trust Mr. H. O. Newport will have his attention directed to the Australian bug fungus,

which might well prove as useful as the redoubtable lady-bird itself. The description of this in the dictionary is interesting. Briefly speaking, it has earned its name because of its forming a minute, deep, brick-red tubercle upon the scale. The fungus destroys the scale by riddling it with its vegetable system, producing its death. The scales eventually fall off, and leave the surface of the tree clean. Like all plagues, this natural prey on the scale is communicated with great rapidity throughout an infested district, once it gets a foothold. The sporous bodies are detached and carried by the breeze or other agents from tree to tree. In the United States artificial cultures of the fungus are produced in large quantities, and sent by the State departments to any infected districts. When the scale, the natural prey of the fungus parasite, is exhausted, the fungus dies from lack of nutriment. The *Argus* states that Mr. M'Alpine first discovered the fungus in 1896, having found it rather plentifully on some orange leaves sent from the Sydney Botanic gardens, parasitic upon the red scale of orange. In several parts of India scale of more than one sort is only too well-known, and it would be well could Government procure some of the fungus for purposes of experiment and research. It may be that our own Agricultural Department, when there is a little rest from writing reports, may discover a bug pest made in India.

Wine from leaves. A French druggist has conceived the idea that the flavour of the fruits of shrubs and trees is generated in the flowers of these plants and passes from them into the fruits. The fragrance which the leaves of the black currant bush give off, especially after a little rubbing, and which is so very similar to the taste of the berry, has led the man to adopt this opinion. He goes further and says that the pleasant taste of the apple, pear, or grape is prepared in the leaves of the respective plants, although he admits that it is hardly noticeable with these and by far not in the same degree as with the black currant. But this does not discourage the inventor. He sees glycoside, which he proposes to decompose in sugar or a more or less aromatic principle, as he sets forth in the Union Pharmaceutique. The respective leaves are to be crushed and a fermenting agent, such as yeast, is added to them, whereupon the odourless and tasteless glycoside decomposes and the chemical principle becomes free, which is to impart to the fruit proper its aroma and pleasant taste. What was formerly sought to be accomplished with apples, pears, grapes, &c., is now done in a simpler manner with the leaves in the fomenting vat. Jacquemin, for this is the name of the inventor, places these plants, *e.g.*, apple tree leaves in water containing 15 per cent. of sugar; then he adds the yeast. During the process of fermentation there is an odour of apples, and when the fermentation is finished and the yeast has settled, a straw yellow liquid is obtained, which possesses the fine "bouquet" of the fruit of the respective trees from which the leaves were taken. With vine leaves the results are still more prolific. A beverage tasting and smelling strongly of wine is obtained, and finally brandy may be distilled from it, which is similar to the best cognac !

Terracing vs. Draining. It may throw some light on this subject that has been lately so energetically discussed in these columns if we extract the opinions thereon found in the Tea Cyclopædia of 1881. A Sylhet planter tested what he calls "flat or round" terracing, the terraces each being three feet wide, against ordinary unterraced cultivation of the same shape. The tea on both fields were planted at the same time, and were otherwise treated in exactly the same way, save that the terrace edges were left unhoed. From the first the plants on the unterraced field grew a great deal better and stronger than on the terraced field. Another and older field which was terraced gave a good yield previous to that treatment, but deteriorated as soon as the terraces were made. The explanation given is that the terrace walls, by cultivation being prevented at the edges of the terraces, grew hard and compact and hindered the free growth of the tea roots. The same writer says he has observed precisely the same results on many other gardens. Another Sylhet planter especially condemns what he calls the honeycomb pattern of terrace, which act simply as receptacles for water. He describes them as follows :—"In this sort a long pit is dug between the lines, the pit extending across the slope; these pits are suffered to stop the wash or rush of water down the hill and to save loss of soil. The plants thus rest on a bund as it were, and their roots, especially in poor soil, are confined to that bund. In the hot sunny weather the roots suffer from drought. If cultivation is attempted, the pits or trenches are filled up. In rainy weather water lodges in these pits and the plants suffer from excessive moisture. With the "round" terrace weeding is a matter of great difficulty and expense. A good hoeing three times a year, without any terracing, will largely stop wash and be a great deal more beneficial to the plant.

We may mention, by the way, that the *Indian Planters' Gazette*, in noticing the correspondence, has asked its Darjeeling readers to throw more light on the subject.

The "honeycomb" terracing of Sylhet is, of course, what is known in South India as "continuous trenching," a method of cultivation that to our mind has little to recommend it. The old straight digging fork, if used to merely loosen the earth, and not to invert the clods, takes the palm, we venture to think, for really efficient cultivation in theory as in practice.

To make a soil healthy. Last year we published a series of interesting articles on the relation of the soil with leaf-disease, but we fear a certain proportion of our readers found the style too scientific for their taste. The following notes on the same subject are an abstract from a letter by the same author, and will, we hope, be found easier of comprehension.

If on a rich soil, either old or new, coffee or tea does not come on as as well as it should, the most likely explanation of the failure will, in our South Indian soils, be that the soil is deficient in aeration. This may be tested by having the soil fully analysed, especial attention being paid to the ferrous oxides present; also the carbonic acid and organic matter, while the nitrates present should be shown separately from the total nitrogen. Ferrous oxide is a low and dangerous form of iron, which possesses an extraordinary power of attracting to itself the free and combined oxygen in the soil. A large proportion of this undesirable mineral will, therefore, show that the soil is very badly off for oxygen.

Without oxygen nitrates cannot be formed, and until the demands of the ferrous oxide are satisfied by means of very thorough aeration, the plant growth of coffee and tea will not succeed. When an analysis shows that ferrous oxides are abundant, nitrates deficient, though nitrogenous humus may be present to excess, and carbonic acid is only in small quantities, the conclusion is inevitable that the soil is not sufficiently aerated.

The first thing, therefore, that such a soil requires is perfect drainage to draw off the excessive moisture held by the large quantities of humus present. For until this moisture is drawn off, air cannot enter the soil. Perfect drainage is essential, even to the extent of running drains between every row of trees. Oxidation must further be forced on by means of lime carbonate. Nitrates of various forms being so generally used nowadays, it is advisable to consider the best time to apply the lime in relation to the nitrates. It would be advisable to apply the lime several months, or even a year in advance of the nitrogenous manure, to enable the soil to convert the latter into nitric acid, or to hold up the ready-formed nitrates without danger of interference from the ferrous oxides. Nitrates and lime must not be applied together, otherwise a loss of nitrogen ensues. Or if this is unavoidable, several inches of soil must separate the one from the other.

The London Market.

Coffee.—On the 1st instant the summary of the stocks, says the *Produce Market Review* of 12th March, shows that there has been an increase during February of about 8,000 tons in the European stocks, but a decrease in the world's visible supply of 760 tons. The latter is doubtless due to a falling off in the receipts at Rio and Santos during the month, but this week there has been a very considerable increase again, and the total, though there are still four months of the crop year to come, is already in excess of the amount received during the whole of the previous year, which was the largest on record. This, but more particularly a further rapid fall in the Brazilian exchange to 6¼*d.*, has had a weakening effect upon the market, particularly on the terminal market which has fallen from 9*d.* to 1*s.* 6*d.* below the previous very low quotation. At auction the amount offered has been smaller than usual, particularly with good home trade kinds, and as the export demand keeps slow, rates have, in many cases, given way; Colombian and other Central American sorts from 1*s.* 6*d.* to 2*s.* per cwt., and Costa Rica, excepting the few lots of fine coloury parcels, about 1*s.* per cwt. Only small lots of East India and Plantation Ceylon have been offered, and these have sold well at full prices.

London Coffee Returns.

—	Home Consumption.		Export.		Stock.	
	1898	1897	1898	1897	1898	1897
For the week ended March 5, 1898.	Tons. 250	Tons. 259	Tons. 372	Tons. 312	Tons. 10,477	Tons. 8,091
For the 9 weeks ended March 5, 1898.	2,502	2,425	3,383	2,209	—	—

Official Statistics of the Coffee Trade of the United Kingdom.

	1 Month ended Feb. 28.			2 Months ended Feb. 28.		
	1896	1897	1898	1896	1897	1898
Imports ...	59,560	91,178	62,646	91,934	131,163	120,683
Home Consumption.	18,646	19,582	19,374	42,188	41,287	40,072
Exports ...	24,959	23,298	32,309	43,890	39,209	62,114
Total Deliveries ...	43,605	42,880	51,683	86,078	80,496	102,186
Stock on Feb. 28 ...	159,975	189,002	224,839	...	...	...

Indian Teas.—The supply has been moderate, but as there is no material improvement in the demand, the change in values is not important. The proportion of the offerings of very common teas was again large, and lower quotations were in some cases established. As these grades have to compete with the lower qualities of Ceylon now being freely brought forward, and as the latter are better in appearance, it is not surprising that their value should fall. On the other hand, similar descriptions, giving a better result in cup, were steadily competed for and fetched prices equal to those of last week, and as the supply is not likely to be too plentiful, present rates may probably be well maintained. The finest teas continue to be actively competed for, the quantity offering being unusually small, and prices in consequence show a decidedly firmer tendency. It would appear that the highest point has not been reached, although it is quite probable that any further important advance would check the consumption of the finer tea. The medium sorts, although not meeting with such a good inquiry as a few weeks ago, have not changed in value, excepting those giving a poor infusion but with fair appearance, which sold in buyer's favour. Of the 31,613 packages submitted to public sale 6,290 were withdrawn, being a larger proportion than usual. Most of the catalogues contained final invoices from the different districts, and many of these teas are as poor in quality as at any period during the season.

COFFEE SHADE TREE.

Sun-dried Erythrina Lithosperma loppings, &c., contain per ton:—

61·50 lbs. Nitrogen.
57·38 „ Potash.
14·92 „ Lime.
13·68 „ Phosphoric Acid.

Seed cured under Messrs. Sutton and Sons' advice.

Orders should be booked early for the coming crop of seed from the parent trees of above analysis at Rs.6 per pound containing about 2,000 seeds. *Germination guaranteed.*

Only thornless variety extant, and is not procurable anywhere save from the

MANAGER, ARIENKOW ESTATE,
Shencottah.

Advertisers are notified to send all advertisement matter and answers to advertisements direct to Manager, this paper, 11 and 12, Second Line Beach, Madras.

Correspondence and matter for publication to be sent to Editor, this paper, Coonoor.

LETTERS TO THE EDITOR.

ASH TIMBER SUBSTITUTES.

Sir,—In one of your back numbers, I note the English Coach Builders' Association are looking about for a substitute for the English ash.

There are many good timber trees in our jungles that have all the characteristics of the ash, and it would be well in these days of small crops to make use of the timber.

The Vengai (*Pterocarpus Marsupium*) or Kino tree affords excellent timber, but one drawback is that it can't be used for lintels of doors, &c., as it discolors the whitewash. The blood-red juice of this tree on exposure to the sun soon hardens, and is the "Kino" sold in shops. It is used in colouring port wine also. Another is the "Ironwood tree" (*Mesua Ferrea*), Tam. *Irul*, Can. *Naga Sampage*, which is a very hard timber, and owing to the difficulty of manipulating the wood is seldom used.

W. D.

DECIDUOUS E. LITHOSPERMA.

Sir,—I had an idea that Mr. Nelson held that *E. lithosperma* was a non-deciduous tree. It may be in his district, and also when once established. But I noticed a letter in your columns stating that in Mysore most of the *E. lithospermas* were almost bare of leaves, and in this very hot, "hot weather," too. On the Nilgiris the same complaint is being made.

A good deal of dissatisfaction, too, is caused by the large proportion of thorny trees that come up from his seed. I do not deny that his seed is, perhaps, the best available, but when he calls it the only "thornless" variety, and a goodly lot turn up covered with thorns, well—people grumble. A change in the wording of his advertisement, somewhat in this manner, —— rupees per pound; guaranteed germination——per cent.; guaranteed thornless——per cent. of germinated plants, would remove all misapprehension. A note of explanation on the "non-deciduous" habits of the tree would also be useful.

Evergreen.

A SNAKE STORY.

Sir,—It will interest many of your readers to know that a hamadryad (*Ophiophagus elaps*), nine feet long, was killed yesterday by my overseer on Kasier estate, Aracood, Kil Kotagiri (elevation 4,000 feet). It appeared of abnormal girth, and on cutting it up to preserve the skin, a large snake came in evidence, and on my visiting the estate to-day, as I could not identify it with certainty from description given me, I had the remains of the hamadryad exhumed, and recognised the swallowed snake, which was still in good preservation, as a small python (*P. molurus*) measuring 7 in. in girth and 5 ft. 1 in. in length.

The hamadryad is the first specimen I have ever seen or heard of this side of the hills during a residence of 25 years. When encountered, I am told, it exhibited all the aggressiveness for which it is so dreaded, and had it not been satiated with its python meal, it is probable it would have given chase when disturbed.

W. Deane.

1*st April* 1898.

"YOUNG PLANTS DYING."

Sir,—In your issue of March 5th, "Planter" writes: "It not unfrequently occurs that young plants which have successfully stood their own throughout the hot weather die off after the first spring showers . . . To what cause do your most experienced friends attribute such results"?

A possible solution of the problem may, I opine, be found in the theory of "cell rupture." A plant during the dry weather remains almost inactive,—practically ceases to absorb or assimilate nourishment and, in short, winters. As soon, however, as the spring showers fall, moisture is supplied, the plant absorbing this in quantities in excess of its capabilities to distribute the same through its tissues, sustains what may be designated a "cellular rupture," resulting in death synonymously, from a physiological point of view what would occur to an individual who, having undergone starvation for an extensive period, all at once satisfied to the full his craving for food.

D.

[We hold this to be a likely explanation. The action of "frost-bite" on plants is attributed to the same cause, *i.e.*, cell-rupture, though due to a different agency, *i.e.*, the sudden expansion of the cell-liquid by the warmth of the sun.—Ed.]

COFFEE IN HAWAII.

Sir,—With reference to your very interesting paragraph in your issue of the 26th instant on "Coffee Prospects in Hawaii," can you tell your readers, or can any of your readers tell you, what I think will be even more interesting to the majority, that is whether there is any demand at all for the planter with experience but *without* capital, *i.e.*, superintendents?

I imagine, from my own experience and from the advertisement pages of *P. O.*, that there are more than a few bachelors like myself who would not be at all unwilling to exchange South India for Hawaii if there were a reasonable salary and climate to be obtained in the latter place.

The nice little sum showing a profit of 21 thousand dollars, not to speak of a valuable property, at the end of seven years, means a capital of, say, a lakh and-a-half in rupees, and even then one does not know if the building of a bungalow, &c., is estimated for,—it hardly looks like it.

I am sure many would like to hear much more about Hawaii,—the labour, the climate, the kind of jungle, and all the conditions, especially the price of food, even if every one has not a lakh and-a-half.

I note that the curing is apparently done on the estate. Is the machinery necessary for this included in the seven thousand dollars estimated for the first year? *Can* the first year's estimate include machinery, building, &c., besides felling, clearing and planting with all that that entails? All these are expensive works, at any rate here! The coffee is evidently intended to be planted at once, as two cwt. per acre is estimated for the third year! I hope that information on this most interesting subject will be forthcoming.

Cure.

[We trust that the Editor of the Hawaiian *Planters' Monthly* will be able to give the requisite information in his journal. "Cure" should address his enquiries to the British Consul, Honolulu, Sandwich Islands.—Ed.]

PLANTING BOOKS.

Map of Ceylon Tea Estates Rs.9; colored Rs.10; Mounted in case Rs. 14.

Map of Ceylon Plantations, Plain Rs.8. Inga Va, Rs.2-8. Areca Palm, As.12. Cocoanut Planter's Manual, Rs.4-10. Ceylon Manual of Chemical Analyses, Rs.3-10. Tobacco Cultivation, Rs.3-10. India Rubber (now in the Press). Coffee Planter's Manual (now in the Press). All about Spices, Rs.3-10. Coffee Tree and its Enemies, Rs.1-8. All about Grub, Rs.1-5. Brazil as a Coffee Country, Rs.1-8. Cardamoms, Re.1. Ceylon Coffee Soils and Manures, Rs.1-9. All about Aloe and Ramie Fibre, Re.1. Estate Buildings, Rs.4-4. Coffee and Chicory, Rs.1-13. Coffee Cultivation in Ceylon, As.5. Tea Cultivation and Manufacture, As.5. Tea Cultivation in Ceylon, As.6. Tea at high elevations in Ceylon, As.3. Manuring of Tea Estates, As.8. To Economise Labour Supply, As.12. Planting, Pruning and Preparation of Tea, As.12. Salt for Agriculture, As.8. Cocoa, Cocaine and its Salt, Rs.2. On the Importance of Lining, As.4.

Apply "Observer Office,"
Colombo.

GENERAL ARTICLES.

RHEA IN INDIA.

THE last published proceedings of the Agri-Horticultural Society India contain the following correspondence on the subject of hea cultivation in this country. It will be noticed that there is a eat difference between the results obtained at the Saharanpur otanical Gardens and those obtained elsewhere:—

Letter from the Secretary, Rhea Fibre Treatment Company, mited, in continuation of former correspondence. "In further ference to your letter of the 31st August, perhaps the best way replying to the same will be to send you the enclosed extract from letter we have written to Mr. Whitehead, which we think will eak for itself, and in which we have explained our statement that were willing to pay a higher rate for ribbons of approved quality. e hardly think it is possible that Mr. Gollan refers to the ribbons mply stripped from the cane and dried, as we require them, for e following extract conveys an impression of a distinctly opposite aracter:—

'Our highest return is a ton of wands per acre, weighed after ripping off the leaves, which yield from 3 per cent. to 7 per cent. ribbons, *according as they are well cleaned and scraped or not.*'

"From information supplied to us by those who have cultivated, d are cultivating Rhea plants, the plant once established, an acre land will yield about 25 tons of green stalks with the leaves on: ese stalks will produce from 5 per cent. to 7½ per cent. of dried bbons, or, calculating on the lower figure, 1¼ tons of *dried ribbons* r acre, and we, therefore, venture to suggest that Mr. Gollan's lculation of yield should be carefully and independently tested fore being accepted in its entirety.

"We trust these opportunities of correspondence, which you are ood enough to afford us, may be the means of giving information hich will act as an inducement for practical experiments and vestigations being made, in order to ascertain the actual yields different localities, and conduce to the development of the dustry, and profit to the Indian ryot."

(*Extract from letter to E. C. Whitehead, Esq., dated 24th September.*)

"The 'slightly higher prices,' to which you draw our attention, eans that if we were quoted instead of £10, £11, or even £11-10*s.*, e might feel disposed to pay this price for a very good ribbon for short time, so as to encourage the cultivators and to give them a mewhat wider margin during the first year or two of their ltivation, and which must until they, from practical experience, rive at the best way of going to work, be more 'or less in the ture of experimental cultivation.'"

The above letter was sent to Mr. Gollan, Superintendent, Governent Botanical Gardens, Saharanpore, who wrote as follows:—

"In reply to your letter of the 19th instant and enclosure, from e Rhea Fibre Treatment Company, I am sure of the figures I sent ou on the subject of Rhea, as far as this part of India is concerned. is simply folly to think of growing the plant for profit in the mparatively dry districts of Northern India. I believe it could e grown with profit in warm, moist districts in Assam, in some rts of Bengal, and in some of the Southern and Western districts India; but in Northern India the climate is too hot, and dry ring the hot months, and too cold during the cool months, for the ant to wand freely. Our only crop, which is worthy of the name, the monsoon crop, and it, at its best, is light compared with what e plant is capable of producing in districts with a moist equable opical climate."

PROFESSOR PLATEAU ON FLOWER ATTRACTION.

PEOPLE have long held the romantic fiction—as it is now roved to be by Professor Plateau of the University of Ghent —that flowers deck themselves in beautiful colours to attract e wandering bee and flighty butterfly. We watch the glorius blossoms flashing in the sunlight or gleaming star-like at nightfall, and we imagine all this beauty is to attract bee, butterfly or moth, a direct appeal to their artistic sense. Mr. Grant Allen, in his charming little book, "The Story of the Plants," tells us: "*that* is in fact what beautiful flowers are for —to attract the fertilising bees and butterflies." Sir John Lubbock also has led us on to theorise concerning the origin of varieties of flowers, and trace to the insects, which apparently distinguish between colours and evince likes and dislikes in the matter, the advantage some varieties have in the struggle for existence. Even individual flowers may become peculiarly specialised: thus, the nectary may become so deep as to be accessible only to insects with long proboscis, as bees to the exclusion of flies, butterflies and moths to the exclusion even of bees, it may be even to some particular species only. Mechanical adjustments are also to be found in many of the more specialised types. Witness the stamens of the sage, which are rocked forward by the bee on entering the flower so as to dust his back with pollen just where it will be rubbed off upon the stigma of the next flower. The most extraordinary variety and complexity is, however, that presented among the orchids. How some flowers, *e.g.*, (Stapelia, Rafflesia) attract the services of flesh-flies by the odour and even colour of carrion; how others like Arum and Aristolochia may entrap and detain the fertilising insect until well dusted with pollen, are examples which can but be mentioned.

Now comes M. Felix Plateau, the Belgian savant, and after an exhaustive study of the question of how flowers attract insects, gives us a theory diametrically opposed to conclusions of attraction previously arrived at. In the course of his experiments he covered the flowers of a single dahlia with green leaves. In some cases the petals alone were hidden, in others the whole flower. The insects visited them as assiduously as before. Various experiments followed, of which the feature was to disguise the flower or render it inconspicuous. The gaily coloured parts were removed or hidden, but with the same result. The insects continued to visit them. The Professor gave the subject long and patient consideration and experiment, and arrived at the conclusion that colour plays a very subordinate part in the attraction of insects. He discovered that insects pass from colour to colour of the same species of flower—from blue to purple, rose or white cornflowers, from red to yellow, purple, scarlet or white single dahlias, from the brilliant flowers of the scarlet garden flax to the equally brilliant blossoms of the common blue flax.

These experiments over, Professor Plateau developed his interesting theory, viz, that insects by their keen sense of smell detect the presence of the honey, and are not guided to it by the appearance of the flowers. There are certain flowers of gaudy colouring that are rarely visited by insects. These when provided with honey were rendered attractive. The scarlet geranium was amongst those chosen for this experiment,

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and some of the flowers were given a little honey. In the course of an hour eight bumble bees had visited the flowers, passing over without alighting on those blossoms that did not contain the nectar. Phlox, Japanese anemone, the larger bindweed and others were then submitted to the test, with identical results. The next experiment was to remove the honey from flowers naturally containing it, and then to watch the effect. Although a difficult operation, it was successfully performed, and the result was as anticipated. The insects ceased their visits. These same flowers were then supplied with honey, and then they once more proved attractive. Professor Plateau made the discovery that the anemophilous plants, *i.e.*, those that depend on the wind for fertilisation, and have inconspicuous flowers, can be rendered attractive by providing them with honey. He also had his attention called to the species of plants with green, greenish, brownish flowers that yet have the power to draw insects—containing as they do honey. There are about ninety in all, amongst which are ivy, asparagus, sycamore, wood sage, figwort, etc.

The Professor then proceeded to construct artificial flowers, such as the lilac, forget-me-not, foxglove, etc., and placed them, provided with honey, amongst the natural flowers; but in no case were they visited. When, however, he made artificial flowers from natural leaves and gave each a store of honey, they were constantly visited, though their appearance was decidedly unnatural. Professor Plateau's theory, then, stands thus:—"Insects seem to care little for the presence or absence of floral parts or brilliant colours. That which they desire is pollen or nectar, and they are guided towards this pollen or this nectar in a very subordinate way by sight, but, on the contrary, in a very sure way by another sense, which can only be smell."

CULTIVATION OF PARA RUBBER.

(*Continued from page* 134.)

Rate of growth. The tree grows very rapidly in height. The original trees, planted at Henaratgoda in 1876, were about 30 ft. high and 14 in. in girth two years later. In 1882 the largest tree was 50 ft. high and 25 in. in girth at a yard from the ground. The girth of this largest tree was taken annually after this with the following results:—It was 30 in. in 1883, 36 in 1884, 43 in 1885, 49 in 1886, 53½ in 1887, 60 in 1888, 65 in 1889, 69¾ in 1890, 73 in 1891, and 79½ in 1893. The girth of the largest tree measured in Brazil by Mr. Cross was 82 ins.

The measurements above given are those of the largest tree. More useful data for scientific and practical purposes are obtained by taking the mean girth of all the trees on a considerable area. This was done in January, 1897, on the plantation made at Henaratgoda in 1876. This now consists of 45 trees, about 30 feet apart. The girth was taken at the height of the eye, about 5 feet 6 inches above the ground. The largest tree was 7 feet 5 inches, the smallest 2 feet 1 inch in girth. The mean girth was 4 feet ⅓ inch.

In the plantations made by the Forest Department near Ratnapura measurements were taken in December, 1894, of the mean girth trees at 3 feet from the ground, with the following results:—

At Edangoda	(4 yrs. old),	mean of	100 trees	12·96 in.
Do.	(3 yrs. old),	do.	50 trees	8·75 in.
Do.	(2 yrs. old),	do.	20 trees	4·96 in.
At Yattipowa	(3 yrs. old),	do.	108 trees	9·37 in.
Do.	(3 yrs. old),	do.	108 trees	9·13 in.

The larger measurement at Yattipowa is that of trees on t western slope, the smaller that of trees on the eastern slope. T difference appears to be due to the fact that the latter are expos to wind.

Tapping. The yield of rubber from very young slender trees is too small to make their tappi worthwhile, and it is best for many reasons to abstain from tappi a tree until it has reached a girth of two feet. In a large plantati he girth of the trees always varies between wide limits. A few tre may be fit to tap after the sixth year, and in every subsequent ye more and more trees will reach the size necessary. In favourab localities the bulk of the trees should be in bearing before the e of the eleventh year. The results of the experiments hitherto ma at Henaratgoda go to show that it is inadvisable, having regard the future, to tap trees of less than two feet in girth, but it is st an open question whether the minimum size of tree for tappi should not be fixed even higher. This, however, would of cour necessitate longer waiting for the return, as the mean rate increase of girth in trees of this size is only about three inch per annum.

The methods of tapping and of coagulation of the rubber employe by the native collectors in Brazil and elsewhere are rough, wastef and inefficient, and there is great room for improvement. Exper ments are being made at Henaratgoda to test methods of tappi and coagulation, and their results will form the subject of a subs quent circular. At present we shall only describe the method whi has been employed for some years in the tappings carried on Henaratgoda.

The requisites for the work are a ¾-in. chisel, a wooden mallet, number of clean cocoanut shells, each cut in two so as to form sm basins, a knife, and a supply of clay and water with which to for the gutters round the trees.

The tree is first carefully and lightly shaved with the knife from height of about 6 feet down to the ground, so as to form a perfect smooth surface. Only the outermost layers of the bark must b removed in this process, otherwise the tree will be injured. Whe the shaving is completed, the tree may be polished by hand or car fully brushed. The great object in view is to obtain a smooth an clean surface, over which the milk can run easily, without becomi contaminated by small particles of bark or other rubbish, as th market value of rubber depends on its cleanliness.

A clay gutter is next made round the tree about six inches abo

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The Wynaad and the Planting Industry of Southern India, b Francis Ford. Re. 1.

The Planting Directory of South India. Re. 1-8.

Tea Planting from Seed to Cup in Tamil, with English Transl tion. Re. 1.

Sketch History of the Planting History of Wynaad, by the la Adolphus Arthur Wright. Re. 1-8.

Report of Observations of Injurious Insects and Common Cr Pests during the year 1883, with Methods of Prevention and Remed by Miss Eleanor A. Ormerod, F.R.Met.Soc., &c. Re. 1-8.

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the ground, so arranged as to catch the milk which will trickle down the tree and empty it by two or more spouts into as many clean cocoanut shells placed below. Three shells are sufficient for a tree of 2 ft. 6 in. girth, but larger trees may require four or five. The gutter is made by rolling rather wet clay into a sausage form, between the hands, and then pressing it on to the bark, and forming the channel against the bark by aid of a wet finger. The gutter must not be allowed to dry before the tapping is begun, otherwise the rubber will be contaminated by particles of clay; neither must the gutter be so wet or irregular as to allow the rubber to be dirtied.

Incisions may now be made in the bark with the mallet and chisel, commencing near the top of the cleaned portion.

A V-shaped cut is made in two strokes. The object to be aimed at is to make these cuts to such a depth as just not to reach the wood. They should stop in the bark close to the cambium, as the vessels which contain the rubber occur only outside, but very close to the cambium. If the cambium is not injured, the wound rapidly heals, but if the cut penetrates this layer, and enters the wood, the healing of the wound is much slower, and at the same time risk is run of introducing parasitic fungi into the wood, which may cause much damage. Injury to the wood also causes a check to the upward flow of sap, and thus to the growth of tree. Considerable practice is required before the chisel can be habitually driven in to the exact depth necessary. In dealing with a number of trees it will be found most economical and satisfactory to keep separate coolies for each of the various operations required, as they all need much practice.

As soon as the cut is made, the white and very sticky milk commences to flow. A second V-shaped incision should be made about a foot below the first, and others at similar distances down to the gutter at the base of the tree. Another set of incisions may then be made parallel to the first, at about ten or twelve inches from them, and other vertical rows of cuts may be made if there be sufficient room for them. On a tree of 2 ft. 6 in. in girth, four vertical rows of cuts may be made without serious injury.

As each cut is made the milk flowing from the cut above it should be guided downwards to it along the bark by means of a twig, otherwise the milk is liable to be wasted by dropping to the ground from projecting portions of the bark.

The bulk of the milk, especially in large trees or trees which have not been recently tapped, ultimately flows into the cups at the base of the tree. These should be kept covered in such a way as to prevent dust or other rubbish falling into the milk. As soon as the milk ceases to flow into the cups, these are removed to a warm place, and in a few hours a cake of solid rubber can be removed from each, which should be kept in a dry place until it has become properly dry all through. The remainder of the milk dries upon the trees in the form of long strings, which are stripped off and rolled into balls. The whole of the rubber when dry is now ready for market. The most suitable times of the day and of the year for tapping are still the subject of experiment. The most satisfactory results have, on the whole, been obtained by tapping in the drier parts of the two monsoons, *i.e.*, from January to April and in August and September. The tapping should be done on dry days, otherwise it is difficult to prevent dilution of the milk and to dry the rubber.

The tappings may follow one another at intervals of a week for about four to eight weeks. The second tapping gives a much larger yield than the first, and the third and fourth tappings are usually very productive. In a series of experiments made during 1897 on trees of about 2 ft. mean girth, the average yield per tree of the successive weekly tappings was as follows:—

	oz.
First week	·73
Second „	1·4
Third „	·97
Fourth „	·80
Fifth „	·67
Sixth „	·52
Total ...	5·17

Yield. The statements as to yield of rubber found in books of travel and popular articles are very unreliable, and experiments are being made to test the whole question of yield. The late Dr. Trimen commenced in 1888 to tap one of the original trees at Henaratgoda, then nearly twelve years old and 50½ in. in girth a yard from the ground.

It was tapped on seven days between 25th January and 15th February, yielding 17¼ oz. of rubber, on six days between 20th July and 29th August, yielding 7 oz., and on four days between 6th and 20th December, yielding 4⅓ oz.; a total of 1 lb. 12¾ oz. The same method was followed in alternate years, with results as shown below—

1888	... 1lb. 12¾oz.	1894	... 3lb. 3 oz.
1890	... 2 „ 10 „	1896	... 3 „ 0¼ „
1892	... 2 „ 13 „		
		Total	... 13lb. 7oz.

The average yield of this tree from the twelfth to the twenty-first year is thus almost 1½ lb. per annum. This result is very good, and if all the trees of the same age yielded as much rubber, the success of the cultivation would be assured. It should, however, be noted that the girth of this tree in 1888 was larger than the mean girth of the whole plantation, as mentioned above, in 1897, and that therefore this yield, if the tree tapped be accepted as a fair sample, represents rather the result to be expected after twenty years, by which time the average girth of the trees should be equal to the girth of this one at the time its tapping was commenced. The trees in question are about 30ft. apart, *i.e.*, 50 trees to the acre. These data thus indicate a yield of about 90lb. of rubber per acre in the twentieth year, a result insufficient to make it worth the while of private planters to take up rubber cultivation.

It seemed probable that better results might be obtained by tapping younger and smaller trees more closely planted, and experiments were therefore begun in 1896 on a younger plantation of trees at Henaratgoda. The mean girth in January, 1897, taken at 5ft. 6in. from the ground, of 225 of these trees was 2ft. 4½ in. The figures already given for the average weekly yield represent the mean results of the tapping of 27 trees of a mean girth of 1ft. 10½ in., six inches less than the mean girth of the whole plantation. From six consecutive weekly tappings of each, a mean yield of 5·17 oz. per tree was obtained. This represents a yield of 97 lb. per acre of 300 trees (12 ft. apart). If the trees tapped had been of the same mean girth as the whole plantation, the yield would probably have been at the rate of about 120 lb. per acre. Further, only six tappings were made, and the trees, after a rest of a few months, would probably have stood three or four more tappings whose yield might have been at the rate of 30 or 40 lb. per acre.

No record, unfortunately, was kept of the date when this plantation was made. It is probably twelve years old at least. The sandy soil at Henaratgoda is unfavourable for Para rubber, and in better soil the trees would probably reach this mean girth in ten years or even less. It would seem, therefore, that if this cultivation is taken up in favourable localities, a yield of about 120 to 140 lb. of rubber per acre may be expected after the tenth year. This estimate is, however, liable to modification by the results of experiments which are still in progress.

Cost of opening plantations. The following estimate of the first year's cost of opening a plantation of 300 acres of forest land with rubber was prepared by Mr. F. Lewis, Assistant Conservator of Forests, Colombo:—

	Rs.
Felling and clearing at Rs.12 per acre ...	3,600
Lining, 10ft. by 10ft., at Rs.2 per acre ...	600
Holing, at 75 holes per cooly at 40 cents ...	697
Filling and planting and carrying plants from their nursery to holes, 300 per cooly at 40 cents.	175
Draining: 300ft. of drains per acre at 1 cent per foot run	900
Lines for coolies: 1 shed of 10 rooms of 12ft. by 10ft., mud walls, and battocalla roof, at Rs.30 per room	300
Roads for inspection, 2 miles	160
Plant nursery, including watering	150
Weeding, at Re.1 per acre per month ...	3,600
Cost of surveying lines round plantation, say ...	75
Contingencies, such as special work, bridges over streams, or supplying vacancies, &c. ...	250
Salary of assistant	1,000
Tappal cooly	120
Tools	300
Total ...	11,927

This represents an average of Rs.40 per acre. A return of Rs.4,200 is estimated to be obtained by the sale of timber and firewood from the land cleared. This should suffice to erect the assistant's bungalow and leave a small margin for contingencies.

To this estimate private planters must add the cost of land and of seed (about Rs.20 per 1,000). These items will probably bring up the total cost for the first year to at least Rs.125 per acre. As a matter of fact, 300 acres are more than can be opened in one year, as the number of seeds required will be at least 160,000, which amounts to nearly two years' crop of the trees in the Botanic Garden.

For the second, third, and fourth years Mr. Lewis estimates the expenditure on weeding and supplying at Rs.12, Rs.8, and Rs.12, respectively. Assuming that the expenditure in the years following is at the rate of Rs.5 per acre, the cost of the plantation up to and including the tenth year might work out as follows :—

	Rs.
Cost of land, 300 acres at Rs.75	22,500
Cost of seed, say	3,600
First year's cost as above	11,927
Weeding and supplying, second year	3,600
Do. third year...	2,400
Do. fourth year	1,500
Do. fifth to tenth years, inclusive ...	9,000
Salary of assistant, second to tenth years, inclusive ...	9,000
Tappal cooly and tools, second to tenth years, inclusive...	1,250
Total ...	75,777

Allowing interest at the rate of 7 per cent. on all money expended up to the end of the tenth year, the outlay upon the plantation will amount to at least Rs.1,10,000, or Rs.366·66 per acre.

Return. The value of Para rubber in the London market varies between two and four shillings per pound, according to the quality of the rubber and the state of the market. Of the rubber which has been collected in the Botanic Gardens and sent home for valuation, a large proportion has been valued at almost the highest market price then ruling, but a considerable proportion of the rubber is always of inferior quality, being mixed with particles of dirt. If we estimate the average value of the crop at 2*s.* per pound, and the yield in the tenth year at 100lb. only per acre, the return in that year will be £10, or say Rs.150 per acre. The cost of harvesting should not be more than Rs.50 per acre, including carriage to London. This leaves a margin of Rs.100 per acre, representing a return of 27 per cent. upon the original outlay; if 12 per cent. be allowed for contingencies and the usual vicissitudes of a tropical cultivation, there remains still a prospect of a good return on the capital expended.—John C. Willis, *Director, Royal Botanic Gardens.*

MARKET REPORT.

COFFEE.

Messrs. R. J. Rouse & Co.'s Weekly Coffee Report (March 18, 1898) says :—Larger supplies have been brought forward in Public Sale this week, and these met a poor demand at declining prices for all except the finest qualities.

About 2,600 bags East India were offered, out of the S.S. "Dido," which has only just arrived after a very slow voyage; the bold colory grades attracted good competition, but mixed and greyish descriptions barely realised valuations.

Central American kinds received little attention, and were with difficulty disposed of at a decline of 3/– to 4/–, whilst a large proportion had to be bought in.

Heavy receipts caused a further fall in Futures this week, and at the close quotations are 1/– lower than our last.

Messrs. Wm. Jas. and Hy. Thompson's Report of the Colonial Markets for the Week ending March 16th, 1898, says :—Bank rate 3°/₀. Bombay Exchange closes at 1s. $3\frac{15}{16}$d. Brazil Exchange $6\frac{9}{32}$d. Rupee paper $3\frac{1}{2}$°/₀ $63\frac{1}{4}$. Silver $25\frac{5}{8}$d. per oz.

This market closes very flat and considerably lower for Central American kinds, especially London cleaned, which are difficult of sale at an irregular further decline of 3s to 4s per cwt. East India continues steady for the better qualities, ordinary being only partly sold at 1s to 2s decline. Brazil markets dull.

Daily receipts averaged 13,700 bags in Rio and 14,800 bags in Santos.

Futures have ruled weak with a small business doing at a further decline of 1s to 1s 3d per cwt., viz. :—Good average Santos in Havre, May delivery, fcs. 34.25, in Hamburg pf. $28\frac{3}{4}$, and No. 7 low ordinary Rio in New York $5.10.

To-day's London official quotations are :—

	March	May	July	Sept.	Dec., '98.
Santos ...	27/9	28/–	28/3	28/9	29/3

We quote :—

Ceylon, mid. to good mid.	95/	@107/	
Do. small to low mid.	80/	„ 93/	
East India, mid. to good mid...	77/	„ 93/	
Do. small to low mid.	62/	„ 76/	
Guatemala, mid. to fine...	74/	„ 103/	
Do. good ord. to low mid...	55/	„ 70/	
Salvador, good ord. foxy greenish...	43/	„ 46/	
Costa Rica, mid. to fine...	77/	@108/	
Do. ord. to low middling.	53/	„ 76/	
Jamaica, good to fine ord.	43/	„ 55/	
Do. greenish to fine colory...	70/	„ 125/	
African ...	29/	„ 30/	
Columbian, ordinary ...	38/	„ 43/	
Do. good ord. to low mid...	45/	„ 70/	
Do. mid. to fine...	73/	„ 98/	

Receipts in Brazil to 16th March compare as follows with previous years :—

	1897-98. Bags.	1896-97. Bags.	1895-96. Bags.
Rio	3,485,000	2,772,000	1,917,000
Santos	5,336,000	4,340,000	2,706,000
	8,821,000	7,112,000	4,623,000

In Sale —

81 casks and tierces 15 barrels 13 bags Plantation Ceylon part sold	75/	@	119/6
1,259 bags East India. { 30 bags Mysore	60/6	„	80/
1,259 bags East India. { 1,229 bags Coorg	43/	„	107/
238 bags Venezuelan, part London cleaned, bought in.			
6,947 bags Costa Rica, part London cleaned, chiefly sold...	41/	„	107/
1,235 bags Guatemala „ „ part sold ...	68/	„	83/
1,180 bags Salvador „ „ „ ...	39/6	„	85/
306 bags Nicaragua „ „ „ ...	39/6		
1,659 bags Columbian „ „ chiefly sold...	38/	„	98/6
43 bags Bolivian bought in.			
99 bags South Sea Island bought in.			
253 bags Liberian from Akassa, 1896/97 import ...	16/	„	29/6
100 bags Bahia bought in.			
741 barrels 89 bags Jamaica, part London cleaned, part sold	33/6	„	61/
48 bags Montserrat, London cleaned	67/	„	79/6
481 bags Mexican, London cleaned, part sold ...	66/		

TEA.

Messrs. Gow, Wilson and Stanton's Indian, Ceylon, and Java Tea Report, dated March 18th, 1898, says :—

QUANTITY BROUGHT TO AUCTION IN LONDON FROM 1ST JUNE TO DATE.

	Indian.	Ceylon.	Java.
1897-1898...	1,365,514 packages.	955,766 packages.	34,951 packages.
1896-1897...	1,396,039 „	896,584 „	33,517 „

27,643 *pkgs.* Indian
27,344 „ Ceylon
2,340 „ Java
} Total 57,327 packages were offered in public auction this week.

The remarkable progress which is taking place in the use of Indian and Ceylon Teas is illustrated by the following table of various countries which receive a portion of their supplies from the U. K. :—

Re-exports of Indian and Ceylon Tea from United Kingdom during 1897, 1896, 1895, 1894, 1893.

INDIAN.

	1897.	1196.	1895.	1894.	1893.
U. S. A. ...	624,711	902,619	908,743	708,921	848,302
Canada ...	1,180,178	905,597	780,225	711,284	684,271
Turkey ...	243,425	383,775	319,247	506,254	436,912
Holland ...	522,110	415,593	341,435	297,065	277,508
*Germany ...	1,098,703	406,647	425,100	353,995	320,083
Chile ...	206,525				
Uruguay ...	35,439	†279,137	218,628	162,300	212,893
Argentine Republic..	44,487				

	1897.	1896.	1895.	1894.	1893.
France ..	48,221	51,996	57,802	44,337	41,612
S. Africa ...	441,201	326,361	213,986	158,344	106,557
*Russia ...	537,083	273,722	68,170	53,669	28,755
Channel Islands ...	277,249	225,753			
Denmark ...	91,111	91,230			
British W. Indies ...	33,801	29,024	638,345	555,113	466,547
Belgium ...	57,693	—			
Other places ...	265,695	108,186			
Total lbs. ...	5,707,632	4,399,640	3,971,681	3,551,282	3,423,440

CEYLON.

	1897.	1896.	1895.	1894.	1893.
U. S. A. ...	1,624,774	1,408,084	1,423,573	811,368	711,679
Canada ...	1,561,894	1,420,020	1,033,646	957,843	738,041
Turkey ...	16,812	14,422	29,090	16,260	12,526
Holland ...	262,046	248,792	216,422	214,689	180,014
*Germany ...	3,475,236	2,679,897	2,288,895	1,544,763	1,253,233
Chile ...	255,363				
Uruguay ...	29,892	†316,630	267,328	181,123	183,285
Argentine Republic..	60,231				
France ...	75,424	75,300	84,846	81,719	59,647
S. Africa ...	541,105	446,042	300,151	200,487	144,199
*Russia ...	1,578,389	767,551	496,923	323,044	176,092
Channel Islands ...	413,494	405,013			
Denmark ...	169,619	285,279			
British W. Indies ...	93,590	86,925	1,006,197	834,724	653,511
Belgium ...	75,341	—			
Other places ...	450,675	342,708			
Total lbs. ...	10,683,885	8,496,663	7,147,071	5,166,020	4,112,232

† S. America. * Probably the bulk of the Tea exported to Germany was for Russia.

Russia, which is largely supplied *viâ* Germany, shows a most encouraging increase. South Africa is coming more prominently forward, while Holland continues to make progress. Chile is also an important market. To the United States, Canada and Turkey, shipments go largely direct.

Indian. For good liquoring Teas rates were fully maintained, but for poor descriptions prices were again lower.

Week's av. of Tea sold on Garden Account, 1898, 20,586 pkgs., av. 8·20d. 1897, 18,397 pkgs., av. 9d.

	1898.		1897.		1st June to date 1897-8.		1st June to date 1896-7.	
	Pkgs.	Price.	Pkgs.	Price.	Pkgs.	Price.	Pkgs.	Price.
Assam ...	10,693	9·27	9,010	10½	479,033	9·92	486,147	10·23
Cachar & Sylhet...	6,260	6·27	4,883	7½	265,502	6·94	249,992	7·43
Chittagong ...	—	—	80	5¼	5,537	7·15	3,298	7·48
Chota Nagpore ...	—	—	286	5¾	1,640	5·03	1,801	5·11
Darjeeling ...	776	1/·40	—	—	65,316	11·05	57,915	1/·46
Dooars ...	2,744	7·49	2,672	8	123,648	7·48	125,697	7·56
Kangra, &c. ...	12	6	271	5¾	7,975	7·17	5,685	7·12
Neilgherry ...	37	10	30	1/1¼	5,951	6·98	3,728	7·02
Terai ...	—	—	—	—	19,976	7·19	13,403	7·21
Travancore ...	64	5·50	1,165	7¾	28,087	6·40	26,438	7

Total sold on Garden Account 1st June to date 1898, 1,002,193 pkgs., av. 8·77d. 1897, 974,120 pkgs., av. 9·13d.

Comparative prices of Indian Tea in London :—

		1898.	1897.	1896.	1895.
DUST.	(Fair ordinary, dark liquor) ...	3½d	4½d	4¾d	4¾d
FANNINGS.	(Red to brown, strong rough liquor) ...	3¾d	4¾d	4d	5¼d
BROKEN TEA.	(Brownish to blackish, strong liquor) ...	6d	7d	6d	7¾d
PEK. SOUG.	(Blackish greyish, useful liquor).	6¼d	7½d	6½d	8¼d
PEKOE.	(Greyish to blackish some tip, useful liquor) ...	1898. 7d	1897. 8¼d	1896. 7¾d	1895. 9d
PEK. SOUG.	(Blackish greyish, inferior liquor).	4¾d	5¼d	5¼d	6½d
PEKOE.	(Blackish, greyish, some tip, inferior liquor) ...	5¼d	6d	5¾d	7d

Ceylon. There was more competition than has recently occurred, and prices although distinctly irregular showed occasionally a slight improvement.

Average for week 7·05d., against rather under 8¼d. same period last year.

Ceylon Tea sold on Garden Account 1st January to date 1898, 252,177 pkgs., av. 7·63d. 1897, 226,579 pkgs., av. 8·12d.

Comparative prices of Ceylon Tea in London :—

		1898.	1897.	1896.	1895.
PEKOE SOUG.	(Ordinary leaf ; fair liquor) ...	5¾d	6¼d	6d	7¼d
PEKOE	(Ordinary leaf, little twist ; fair liquor) ...	6½d	7½d	7¼d	8¼d
PEKOE SOUG.	(Rather bold leaf ; indifferent liquor) ...	4½d	5d	5d	6½d
PEKOE	(Somewhat bold leaf ; indifferent liquor) ...	5d	6d	5½d	7d

Java. The 2,058 pkgs. of direct import were mostly sold with good competition at firm prices.

PUBLIC SALE OF SOUTH INDIAN TEA.

(AVERAGE FOR ALL INDIA 8·20*d.*) *March 18th.*

GARDEN.	Total.	Average.	Broken Org. Pek. or Flowery Pekoe.		Pekoe and Unassorted.		Broken Pekoe.		Pekoe Souchong.		Broken and Souchong.		Fannings, Dust, and Various.	
	Quantity	Price.	Quantity	Price.	Quantity	Price.	Quantity	Price.	Quantity	Price.	Quantity	Price.	Quantity	Price.
Neilgherry														
Glendale ...	37½c	10	37½c	10	...	...	...	...	...	...	...	...	...	...
South Wynaad														
Richmond ...	12	6	2	9	3	6¼	...	...	7	5	...	...	...	...
Travancore														
GMR ...	64	5½	...	...	36	5	26	6¼	...	...	2	4	...	...

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COFFEE
COCOA.
TEA.
RUM.
RICE.
PEPPERS.
CINNAMON.
CLOVES.
FRUIT.
SALTPETRE.
COTTON.
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GENERAL IMPORTERS

OF

COLONIAL & INDIAN PRODUCE.

A. B. C. Code, Fourth Edition. Cablegrams—"Dilutum, London."

INDIA RUBBER.
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WHEAT.
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RAPE SEED.
CHEMICALS.
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COCHINEAL.
BALATA.
BARKS.
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HIDES.
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TO PLANTERS AND GROWERS OF PRODUCE.

What others do ! !

It is well known that there are Merchant Houses that, although they accept Produce for sale on **Planter's Account,** they, on the other hand, are also **Purchasers on their own Account.**

What we do ! !

It is evident that the services of such houses are not wholly and unreservedly at the disposal of their correspondents. We on no account enter into competition as **Buyers against Planters,** but deal with each separate shipment on its own independent value; correspondents may, therefore, rest assured that **Produce** sent to us will be sold upon its merit, and not used to bolster up inferior qualities.

Business Area :—

We do not confine our business to any particular part of the world, but receive **Produce** from all over the globe, and are in touch with every market for **Produce.**

Samples and Reports :—

On receipt of samples, particulars of the class of **Produce,** and the quantity that can be shipped, a report shall be forwarded, giving full particulars as to market value, demand, &c.

How we Pay :—

We can secure more money for the Planter and Grower of **Produce** than he can obtain by local sale, and, although in the latter case he may at once secure cash, we are quite ready to meet this, possible, advantage to the **Planter,** and by our system of negotiation of drafts drawn upon us against **Produce,** and willingness to pay freight on approved shipments at this end, the **Planter** will obtain a very substantial portion of cash, and further will be quite certain to receive the full **Market Value** of the **Produce** shipped to us.

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All enquiries will be answered by return mail, and upon arrival of shipment every expedition will be used to turn into money the **Produce** sent us.

Markets :—

We can find a market for any **Produce** from any country on the face of the earth. Put your business in our hands and be certain of getting full value and prompt action.

Bouverie House, Salisbury Square, London, England.

PLANTING OPINION.

A WEEKLY JOURNAL

WRITTEN BY PLANTERS FOR PLANTERS.

VOL. III.] COONOOR, SATURDAY, APRIL 16, 1898. [No. 15.

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SUBSCRIPTION.—Advance Rates: Yearly, Fifteen Rupees; Half-yearly, Eight Rupees; Quarterly, Five Rupees, and Monthly, Two Rupees, including postage. Single Copies, Eight Annas.

ADVERTISEMENTS.—From the 1st October, 1897, the charge for line advertisements will be: 4 as. per line for the first, 3 as. for the second, and 2 as. for the third and succeeding insertions. Five-line advertisements from Subscribers will be inserted for three issues for one rupee; non-Subscribers will be charged two rupees.

DOMESTIC OCCURRENCE.—The fee for inserting a domestic occurrence will be *One Rupee* for each insertion, payable in advance.

N.B.—Remittances should be sent to the Manager, "Planting Opinion," Esplanade Row, Madras.

IMPORTANT NOTICE.

The Business Offices of this paper having now been removed to Madras, all remittances should be made payable to the Manager of *Planting Opinion*, 11 and 12, Second Line Beach, Madras, who will also attend to all advertisements, &c.

Letters to the Editor should be addressed to Coonoor, as usual.

SEASON REPORTS.

NOTICE.

TO OUR SEASON REPORTERS.

Please post your next reports to reach Madras on Friday, the 22nd April, 1898.

Season Reports should be sent to the Printers, Messrs. Addison & Co., direct, and not to *Planting Opinion* Office.

Coorg.

Polli Betta, 12*th April*.—*Weather.*—No rain except a few cents a couple of weeks ago. Another rain cycle commenced on 10th, but no rain has fallen here yet. Other parts got good rain from 26th to 30th. *Crops.*—Estates which got the rain had a fine blossom out between 4th and 6th. Other places, spike on the whole still good, but rain badly needed. *Public Health.*—Much improvement. Influenza travelling to other parts now.

Nilgiris.

Coonoor, 13*th April*.—The long expected rain did its very best to pay us a visit last night, but a mile or so north of Coonoor we only got a couple of cents or so. Ooty probably got a shower. The tension of feeling regarding the season's blossom is great, for if timely rain falls, crops this side will be excellent. Tea is hanging fire a lot owing to want of rain. There is nothing of interest to record. The blessed railway is making record progress up the ghaut. It is seriously asserted in authoritative circles that June *next* year will see the first train running at least as far as Burliar.

Kil Kotagiri.

13*th April*.—*Weather.*—No rain yet, all the estates suffering badly and spike burning off, the last blossom suffering badly about half has gone. *Public Health* very bad; a lot of fever and small-pox. *Interesting Items.*—We are now going to get an Apothecary for the district, each estate paying 12 annas per 1,000 trees towards his pay, medicines, etc. A meeting was held, and everyone has agreed to the 12 annas plan except one. *Labour.*—More than sufficient for hot weather work; some planters want to know what to do with their women coolies. Grain still expensive.

THE KEEPING OF ACCOUNTS.

To many of our readers the very heading will be enough, and the page will be turned over hastily to another and less dismal subject. For to the ordinary layman, who gropes among his accounts with weariness and stumblings, the task of keeping accounts is one of the most hateful of his life. While all goes well, and expenses are well below the income, while bills are easily met and the balance at the bank grows apace, accounts are seldom bothered with. All is so simple and pleasant, fumbling with the figures were surely time ill-spent, unprofitable and wasted. Thus think many. But when liabilities increase, cash grows scarce, and the balance at the bank is only a name; then comes the inevitable task of grappling with the accounts. They may be intricate, blurred and tangled almost past solution, but however difficult and weary the work, the labour of setting the tangled skeins aright in time, is felt with overwhelming force to be the only alternative to failure, dark failure, with the ill-boding Court of Bankruptcy lowering in the background. Had the prime importance of keeping the accounts straight been recognised at the first, the dangers and difficulties of coming failure had been, in more cases than the public dream of, successfully averted.

For what is the object sought to be attained by keeping one's accounts in perfect order? Simply to know exactly, and at any given moment, one's financial position. The importance of this knowledge is well set forth by Mr. C. E. Ross, of the P. W. D. Accounts Department, author of a useful little work on accounts.* Every person knows, or thinks he knows, what money is; but few know, or even care to know, how to account for it properly. Yet the latter knowledge is almost the more important of the two. These are two *desiderata* in regard to money. The first of course is to get it: the second, to know how to account for it when you have got it. Everyone can understand the first; but many neglect the latter altogether. Yet if they but knew it, the latter would help them to get more of the first, and to keep it, too. The attainment of wealth is dependent to a very great extent upon ability to account for it. Those who systematically ignore their accounts are, as likely as not, on the high road to bankruptcy.

It is difficult to understand why accounts should be neglected, except from one reason only, and that is, want of knowledge how to keep them. For a man who fails to account for money entrusted to him by his employer is rightly considered dishonest towards his employer, and is very properly punished for his offence. Though no direct punishment may be meted out to the man who neglects to account for his own money, and is thus dishonest to himself, the blame is still there.

Having cleared the ground a little, and presumably interested our readers in the subject, let us return to Mr. Ross' work and try and present in as clear a manner as possible the first of the principles that govern all sound book-keeping. The difficulties that attend the art are not so huge as many people fancy them to be, but again are by no means so slight as beginners will imagine. First in importance is the principle of classifying all transactions under their proper heads, of which these are two main ones—Capital and Revenue. A person opening his books say from the 1st of May, will have to first make an accurate list of the various property he owns, with the value attaching thereto. To these, he will add whatever sums of money are owing to him by private persons, banks, or as salary up to the end of April. These will constitute his assets. He must then make a corresponding list of all the debts he owes, bills, loans, and so on to the same date. These constitute his liabilities, which let us hope will be far smaller than his assets! The above two lists will form his balance sheet, and must be entered under the head of Capital. The second main head, Revenue, is divided into income and expenses, and entries will be made each month under these heads in that month when these transactions are due. Thus all the bills due for May, servants' wages, etc., must be entered in May, while sums paid for bills and wages due in April or previously must be entered as a capital item. The object of this is, of course, to keep Capital and Revenue perfectly distinct, to know exactly each month what one's current income and expenditure are (including debts due to one in that period and bills incurred by one in that month,) and thus to keep touch with the growth or fall in one's original capital.

With this we shall take leave of the subject this week, but hope to return to it and go more into detail than has here been possible. In conclusion, let us reassure those of our readers who may purchase Mr. Ross' work, lest they should be unduly scared at the very numerous sets of forms and headings that he recommends. They are by no means all necessary: three of the awful number of the twenty-three books recommended will be found sufficient for all purposes.

* "How to Keep Accounts," by C. E. Ross: Commercial Press, 24, Free School Street, Calcutta; or Thacker, Spink & Co., Bombay. Price Re.1-4.

NOTES.

High price for Tea land. It is interesting to note in a Ceylon contemporary that the highest price ever paid for tea land in Ceylon was recently paid for the Holbrook estate, Dimbula district. This record figure was as high as £120 per acre. It should be remembered, however, that the estate has other and very valuable attractions as a residential estate, besides its capabilities as a tea estate.

Auction sale of Para rubber seed. Some 70,000 seed from the Botanical Gardens of Ceylon, of this valuable variety of rubber, were recently put up to auction in Colombo. The prices realised were from 25 to 29 rupees per thousand seeds delivering in August. One of the conditions of purchase was that the purchasers should enter into a written agreement to the effect that the seed would be planted in Ceylon, and that the seed would not be re-sold.

Messrs. Geo. White & Co's. Tea Review. This firm's interesting Annual Report for last year has reached us. The main feature of last season's teas was the superabundance of plain and characterless teas, the low price for which did not stimulate consumption in the usual manner. Labour troubles in England and the phenomenal

activity of cacao vendors are alleged to be among the important causes for the depression. Finer plucking and more careful manufacture should be the guiding principles for the present season.

Ceylon and exchange.

Thus writes the *Ceylon Observer*, and heartily do we echo its words :—"We congratulate the local Chamber of Commerce on the manner in which an indispensable, but by no means welcome, duty has been performed, in protesting against the currency policy of the Indian Government. We think the outcome of yesterday's (March 28th) meeting will compare favourably with the recent action of any of the Presidency Chambers whether of Calcutta, Bombay or Madras. In the first place the Ceylon Chamber, representing by far the major portion of the importing interests of the Colony, had no difficulty in declaring, and that too without a single dissentient, that in the matter of an honest rather than an artificial currency, the interests of the producers claimed the first and by far the greater degree of attention. Now, if this be true of little Ceylon, how many times more must it be the case in regard to India, if its industries and trade as a whole are fairly considered? And yet we have had many of the merchants of the Presidency capitals by no means rising to the occasion and taking that wide, liberal and just view of the situation which the interests of the silent millions of Indian producers absolutely demand."

Upper India planters and exchange.

South Indian planters will learn with pleasure that the apathy which has till recently characterized the attitude of the Indian Tea Association on the question of exchange, is likely to change into a better appreciation of the position. At a General Committee meeting of this Association, held at Calcutta on the 14th March, the following item occurs :—

"In his letter of 18th February, the London Secretary drew attention to a press telegram which stated that the 'Planters' Association of Southern India have addressed a strong protest to the Government concerning exchange, and demanding the re-opening of the mints, urging that increased trade would outweigh the Government loss,' and he asked for the views of this Association on the subject.

"After discussion, the Secretary was instructed to inform Mr. Tye that the General Committee entirely agreed with the arguments put forth by the Southern India Planters' Association, and they would be prepared to take the matter up."

It is about time they *were* "prepared to take the matter up." The Indigo planters, too, should lose no time in following the lead given them. It seems incredible that a combined movement by the whole planting interest in India has not before been set on foot. In a little while protests will be too late, and the disaster that threatens Indian producers will have become an accomplished fact. We shall then be treated to any amount of wisdom after the event.

The proof of the pudding.

Many and interesting have been the contributions published in these columns on how to prepare the best recipe for the leguminous coffee pudding. Sceptics of the excellence of the recipe were curious to know more about the actual taste of the dish, and the results already observed on the coffee treated to the dainty dish. The opportunity they have been awaiting is now at hand, for Mr. Nelson is now anxious for planters to come and see for themselves what coffee can do in its last haunts in South Travancore. He writes: "Cannot you persuade some of your coffee planters to come and have a look at my *Erythrina lithosperma* coffee. The crop is incredible, and I have never seen such regular clusters and trees such a mass of crop. A ton an acre is nothing to what some of the trees have. *Erythrina lithosperma* and what I call my 'A. G.' system ought to mean fortunes in other districts if they can do the trick in South Travancore, where leaf-disease has practically destroyed the coffee. What ought it not to do where leaf is not half so bad? My pudding is practically in the eating stage and my 'Rêve d'or' a *fait accompli*. Rain alone is needed to keep the berries on the trees."

What say holiday trippers? A week's holiday could easily be worse spent than running down to Shencottah and seeing what the now famous *Erythrina lithosperma* shade can do, if properly managed.

Tanning barks.

Extracts of bark are being more largely imported and used by tanners, says the *Produce World*, the value of those received from the United States, principally hemlock bark, that of the spruce fir (*Abies Canadensis*), which contains about 14 per cent., averaged in the five years ending 1894, £40,000. In 1894 this extract was imported from Canada to the value of £24,600. Many other bark extracts are imported and used—chesnut wood, oak wood extracts, &c.

We are likely to get very little more mimosa, or wattle bark, from Australia, there being such a demand in the local tanneries. It is estimated that at least 14,728 tons of Victorian bark were produced in 1893, of which 10,900 tons were used in the local tanneries of the Colony, and 2,828 tons exported. New South Wales imported, in 1894, 74,580 cwt., a large proportion being obtained from Tasmania. The exports of this bark from Tasmania have fallen from 12,000 tons in 1883 to 5,400 tons in 1894. The exports from Adelaide keep pretty steady at about 4,500 tons yearly.

In the great deficiency of tanning substances, every new discovery may be hailed with satisfaction, and this is also used as a dye-stuff in Kashmir. It is mentioned in the *New Bulletin* for January, and is said to be the root of *Geranium Williekianum*. From the analysis made by Mr. Proctor, of the Yorkshire College, it contains 25 per cent. of tannin, and if it can be obtained in sufficient quantity it would form a valuable addition to our tanning materials. The tanning matter is about equal to myrobalams, but can the root be furnished at as low a price, coming from the Himalayas?

Kangra Valley Tea planters.

Nowhere in India is the present position of the tea-planter an extra-enviable one, but the Kangra valley as a district perhaps takes the cake for general depression. Twenty years ago its days were palmy in the land, and it waxed fat. Now the glory is all departed, and woeful indeed is the tale its planters tell. Green tea, which is almost exclusively made by native planters, used to sell for a rupee per pound barely two decades ago; now a modest two anna bit claims it for its own in Palampur. Black tea, the manufacture of Europeans, was worth in the old days one rupee the pound in Calcutta, where it barely fetches five annas nowadays. Freight, sale charges and packing cost about 1¼

annas, leaving a net 3¾ annas per lb. to the Palampur planter. The lowest cost of production for green and black teas being respectively 3 and 4 annas, Kangra valley tea is now being turned out at a dead loss.

The Kangra Association, in drawing the attention of Government to this deplorable state of things, urges that the land cesses be suspended from tea-land until the industry is on a sounder footing. It points out also an unjust and absurd anomaly in the differential rates levied on European and native holdings, the former being only taxed 12 annas per acre and the latter as much as 4 rupees. To accentuate this glaring injustice native tea land in those villages where a European owns a tea plantation are taxed at the preferential 12 anna rate! More surprising still is it to learn that if natives plant up grain land with tea, they are forced to still pay grain land taxes, which runs up 12¼ rupees per acre in some cases. What the planters want is a suspension of the Government cess and a reduction in rates of freight for tea on the State railways of the Punjab.

While doing all it can to temporarily assist the tea industry, Government would be taking a wise course in introducing some other staple more profitable than Kangra tea, which must surely give up the ghost in the very near future.

Liberian coffee.

A Sumatra planter writes to the *Ceylon Observer* deprecating the ideas prevalent that the days of paying Liberian coffee are over. There are difficulties in the way of good prices being obtained, but these difficulties can be overcome. He writes: "The curing question has been fully recognised: but few have satisfactorily overcome it. Mark this—well cured Liberian coffee will always fetch its price. One estate that I know fetched a fancy price in Europe two years ago: and has always been able to dispose of its produce at a fair market price. Another estate shipped a large parcel just before the recent collapse of the market, sold in Europe at public auction it *netted*—when the market was at smash—$29 per pikul, Singapore quotation at same date being $19—and the shippers were told that they could always get an equal price for such a sample. So much for curing. The other question is prejudice. All in Ceylon except the Podians remember the prejudice against Ceylon tea. First they said in London that brokers and merchants would not waste their time on "samples." When the samples increased in size, the *quality* was found fault with. It was trash; it was rank; it was sour; nothing was bad enough for it. And simply because they didn't know what was given them and treated Indian and Ceylon *tea* just as they had treated Chinese *chopped straw* for the previous half century. As a youngster I remember presents of Assam tea being sent home from India, 'Awfully good of dear old Charlie, you know: but ahem, ahem, &c.' 'Beastly,' was whispered; and the tea was relegated to the kitchen. And so it is with Liberian coffee. It is called nasty, rank, oily stuff. And so it is, if it is not treated properly. In the first place, as a rule, it is not sufficiently dried. It needs far more drying than Coffee Arabica. This refers especially to coffee for the breakfast table, as distinct from coffee for the market. Then it is frequently drunk too new. It wants a lot of keeping. And finally the roasting must be done slowly and very thoroughly. If these points are well borne in mind, Liberian coffee will give as fragrant a cup as any other: and the quantity will go further. In short, point for point, and step for step, it has to fight the same battle that British-grown teas had to fight a quarter of a century ago."

Mr. Carey, the well-known Straits planter, remarks on the curing question: "What makes our bean so unpopular with buyers in great measure is the adherence of the silver skin to the bean. Many of us think this can be overcome by subjecting the parchment to a high temperature artificially, thereby contracting the bean itself before the silver skin has time to adhere to it. Experiments made in this way have shown that the silver skin so much disliked comes off quite clean, and leaves the bean itself with a grand colour visible."

The London Market.

Coffee.—The demand has continued slow, says the *P. M. Review* of 19th March, and as the recent arrivals have been pressed forward the market has been dull, and a lower range of values has been established. The fall has also been accelerated by a further reduction in the terminal market, where heavy receipts and a decline in the rate of exchange to 6¼*d.* has brought prices down 9*d.* to 1*s.* per cwt. At auction some home trade sorts have sold well, and Mysore and other kinds of East India, of which there has been only a small supply for some time, have fetched full rates for the bold, while the other sizes have sold at about the recent values. Costa Rica and Guatemala, however, which are more ruled by the export demand, have given way considerably, and are now relatively much the cheapest descriptions offering. Plantation Ceylon has sold well, while there has been more demand for Mocha, and quotations, "cost and freight," are some shillings above those recently ruling.

London Coffee Returns.

—	Home Consumption.		Export.		Stock.	
	1898	1897	1898	1897	1898	1897
For the week ended March 12, 1898.	Tons. 291	Tons. 268	Tons. 469	Tons. 360	Tons. 10,757	Tons. 9,182
For the 10 weeks ended March 12, 1898.	2,793	2,693	3,852	2,569	—	—

Indian Teas.—Of the 27,643 packages brought forward at the public sales a considerable portion consisted of common qualities of both whole and broken leafs. As these latter grades meet with but a moderate demand, it is not surprising that values are irregular, and before the present large stock is materially reduced, holders must be prepared to accept a lower range of prices than is now current. Of the above quantity 3,210 packages were withdrawn from sale, mainly comprising undesirable sorts and Calcutta-bought teas, which have since met with little attention. There is no doubt that teas re-printed for public sale, as a rule, receive but scant attention, although, in a few cases, better rates may occasionally be obtained, but generally owners are less fortunate in their realisations than they would have been in accepting the

rices bid when first submitted to auction. This is easily nderstood, as the trade have quite enough tea to occupy neir attention without going to the trouble and expense f sampling and valuing two or three times over. Notvithstanding the moderate demand, the market remains rm for all grades removed from the very common and hin liquory descriptions, and therefore, with a more active nquiry, a higher range of prices is almost certain to take lace a little later on. There has lately been more inquiry or good medium kinds, particularly for Assam growths, nd these are the teas most likely to be influenced by an pward movement in values, as any addition to the stock y later arrivals will probably be very small, the majority f the gardens having disposed of the past season's roduction.

GENERAL ARTICLES.

THE U. P. A. S. I. SECTION.

The Ladybird Scheme.

THE following is the first narrative report of Mr. H. O. Newport, who has proceeded to Australia to collect ladybirds with a view to the extermination of scale pests :—

BRISBANE, *6th March* 1898.

DEAR SIR,

I arrived in Australia safely, landing from the *Oruba* at Sydney on the 19th February.

I stayed at the "Australia" Hotel while there, and proceeded at once to the shipping offices to make arrangements for the completion of my journey.

I learnt that the usual boat for Brisbane had left the harbour as the *Oruba* came in ; the next boat would sail in three days, but they could not book me a passage at once for various reasons.

On the next two days I went to the office about this, and was at last told that the whole boat had been chartered by an Operatic Company and no berths could be booked at all. They offered to book me a passage in a boat sailing in another four days, but rather than delay so long, I came on by rail, leaving Sydney on Friday and arriving here late on Saturday evening, the 26th February.

The Brisbane Post Office does not open on Sundays at all, and I was able to obtain no postal information. On Monday I learnt that the mails for India had left at 6 A.M. that morning. Hence my omission to report my arrival here by an earlier mail.

On Monday, the 28th February, I proceeded to the Secretariat and delivered my credentials to the Under Secretary to Government, the Chief Secretary being away.

Mr. Dutton received me cordially, saying that he had heard directly from the Madras Government the mail before and was expecting me. He referred me to the Agricultural Department, making an appointment for me to meet the Minister for Agriculture the next morning and also to see the Premier.

The Premier—Sir Hugh Nelson, whom I interviewed the following day—said much the same, adding that the Government would assist me in any way they could, and he would give me free Government passes over the Railways, should it be found necessary for me to travel.

The Minister of Agriculture introduced me at once to Mr. Henry Tryon, the Government Entomologist, and I proceeded at once to his office and had a long interview with him.

I naturally questioned Mr. Tryon regarding the telegram that was sent to him by the Acting Secretary, U. P. A. S. I., but to which no reply had been received before I left India. He said that not knowing the telegraphic reply had been prepaid, he had mailed a reply. In this reply he had suggested that the person sent out should wait till after the Colonial winter, anticipating a delay of six or eight weeks at least before anything would be done by the U. P. A. On seeing me, he said, however, that he was glad I had come out now; that I was in good time for the autumnal brood of ladybirds which would last for another two months or so. That, moreover, I could get back to India at a good time of year, and save nearly a year in time.

Mr. Tryon said he would write by this mail to the U. P. A. S. I. corroborating what I have just said.

I have naturally not been able to get into full swing of work immediately on arrival. Indeed, Mr. Tryon advises my not collecting in quantity yet awhile, nor should I have been able to do so if I had wished to, for want of knowledge with regard to identification and of apparatus.

The necessary apparatus is not much, and I have now obtained nearly all through the kindness of Mr. Tryon.

I have found my time during the first week fully occupied, however, with interviewing many gentlemen, and going about to various estates, seeing scale pests and ladybirds, with letters of introduction from the Ministers of the various Departments, or Mr. Tryon himself.

At present my work consists in collecting dead specimens of ladybirds, etc., under the supervision of Mr. Tryon, and mounting them —taking notes and making observations meanwhile of localities and habits—for subsequent identification.

This work, as you will understand, is very important and necessary, for there are a vast number of coccinellidæ that are harmful, as well as those that are useful in destroying various scale pests.

I have already been out in some three or four directions by rail, and on foot to places where Professor Koebele went on his last visit here ; but for the present the indoor work—microscopic examination and observation of structural differences between specimens (some are very minute)—occupies as much, if not more, time than the actual collection.

Mr. Tryon thinks that the investigation and subsequent work will take some two or three months in Australia, and be hard work then.

At present I am still at an hotel, but as it has been suggested that I had better make Brisbane my headquarters, returning here from my tours into the country, I propose getting rooms somewhere near the offices, which will not only be more convenient, giving me more room and quiet for my indoor work, but will also be more economical.

So far as I can see now, the allowance on the estimate for the expenses of bringing to India the consignments of ladybirds will have to be somewhat increased.

The refrigerators on the ordinary liners vary considerably in temperature, I understand, and are frequently below freezing point, while the consignments I bring out will have to be kept at a uniform temperature some degrees above freezing. This may necessitate my having a special ice case made, which may cost a few pounds, and also occupy more room on boardship.

I do not anticipate having to draw more funds, however, and think the funds I have in hand will be ample to cover all expenses, provided the investigation does not extend over the three months estimated, the more especially if I can retrench in the matter of travelling expenses by having free Government passes on all Railways.

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Sun-dried Erythrina Lithosperma loppings, &c., contain per ton :—

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57·38 „ Potash.
14·92 „ Lime.
13·68 „ Phosphoric Acid.

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Orders should be booked early for the coming crop of seed from the parent trees of above analysis at Rs.6 per pound containing about 2,000 seeds. *Germination guaranteed.*

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Correspondence and matter for publication to be sent to Editor, this paper, Coonoor.

I am very glad to report that so far the work is progressing satisfactorily, and I have every reason to think I shall be able to work the scheme to a most successful issue.

With regard to shipments of ladybirds and arrangements for their reception, I will write fully by a later mail.

I am, Sir,
Yours faithfully,
(Signed) HOWARD NEWPORT.

TEA IN ENGLAND.

The annual reports of the leading London Tea Brokers have always a special interest for the planting community in India, for they contain a critical and at the same time a friendly review of the year's business that deserves careful study. We have just received the report of Messrs. Geo. White and Co., dated 23rd ultimo. It is unnecessary to give it in full, as a great part relates to China, Ceylon and Java teas. A brief abstract will, however, interest our readers.

Messrs. Geo. White and Co. estimate that there will be about 3,000,000 lb. more Indian tea to be dealt with this season than there was last. They describe "quality from the different districts generally" as "not of an attractive character." Assams proved the best. Darjeelings were, on the whole, disappointing; Dooars were at times good, but the bulk was below that of 1896. Cachars and Sylhets were of ordinary style, while the produce of the North-West districts and that of the Madras Presidency was not up to that of former years. In short, Messrs. Geo. White and Co. refer to the feature of the season as "the superabundance of plains and characterless teas." This, naturally, caused a very low range of values to be established for these descriptions, while owners of fine full-flavoured parcels reaped a corresponding advantage. The reduced scale of values has not stimulated consumption. The labour troubles, and advertisements of Cocoa are referred to as probably explaining this. The Ceylon crop was fairly good in quality, while as regards Java "quality was fully maintained, and the style of manufacture for the most part was of a very useful description." The most natural inference from this is, that India must attend to the maintenance of her quality standards, and must also advertise her wares. The London Brokers referred to certainly anticipate an increased demand, and their report conveys the impression that stocks in England are of a very healthy size. No difficulty in distributing the increased yield of British-grown tea is anticipated. But the diminution that has been constantly occurring in the supplies from China cannot go on for ever, and, once again, Messrs. White hammer an old nail on the head, saying:—"It is necessary that every endeavour should be made to further foster other markets." Once again, too, the question is raised, "If the local consumption in the East Indies among the teeming native populations could also be encouraged." It is rightly observed that if this could be done, a large quantity of coarse leaf and dust might be worked off which at present often does not realise sufficient to cover cost and freight to this country, and tends to increase the supply of poor and low class grades which are really not wanted." It is even observed that "the interests of growers would be much benefited if a mutual movement in this direction could be made by some influential associations, which might be subsidised, even if it was considered advisable to make a compulsory 'cess' for that purpose on each property."

Among other suggestions thrown out, the following are noticeable:—(1) "Instead of spending large sums of money on new clearances, it would often be advantageous to increase the labour force and concentrate attention on the cultivation and improvement of existing gardens." (2) A succession of small shipments at short intervals from one estate is inadvisable, as often also the sorting into too many grades. "A Broken Pekoe of, say, 30 chests or more; a good Pekoe of 50 chests or over; a Pekoe Souchong of 70 chests or upwards, with a break o Broken Tea or Pekoe Fannings will generally be found t answer." (3) Dust should be sifted out and packed by itself.

Our readers will no doubt be interested in the above remarks which show that London brokers are anxious to see India teas gaining ground. Tea in this Presidency is but a smal thing at present, but it is developing, and if South India planters take useful hints when given, and are quick to adop improvements of manufacture, or packing, or selection, the may reasonably hope to see demand for their teas increase They will certainly be interested in reading the following remarks, which Messrs. Geo. White and Co. give under th heading:—

Analysis of Crop from India.

Assam.—The yield from this district has, on the whole, beer above the average, many of the shipments being of a very desir able character, whilst the leaf of those possessing autumn flavou was in most cases devoid of the reddish appearance which often depreciates the value of closing invoices. Owing to the scarcity of good liquoring parcels from other quarters, the Trade was anxious to secure these at enhanced prices. Output for 189 was barely up to that of the previous year, being 58 million lbs against $59\frac{1}{2}$ million lbs. in 1896, and compares with $55\frac{1}{2}$ million lbs. in 1895.

Cachar and Sylhet.—As a rule the crop was below par i cup, but the teas were well made and of a saleable description The total manufacture was rather more, viz., $46\frac{1}{4}$ million lbs opposed to $45\frac{1}{2}$ million lbs. and $39\frac{3}{4}$ million lbs. in the two pre ceding seasons.

Darjeeling and Terai.—With few exceptions quality was decidedly inferior and averages disappointing almost through out, weather having been very unpropitious for the production of fine flavour. For three seasons, 11, $11\frac{1}{2}$ and $10\frac{3}{4}$ million lbs were sent away.

Dooars.—Although receipts were of a fairly useful character throughout, there was a lack of invoices with full coloury infu sions similar to those of 1896. On account of the increased acreage coming into bearing, nearly 24 million lbs. were des patched from the gardens, contrasted with 22 and 20 million lbs in the two years before.

Chittagong. There is nothing special to note in the outturn from here the yield being about the same as last year, viz. 1,000,000, as against 800,000 lbs. in 1895.

Kangra, Dera Doon and Kumaon.—Weather appears to have been unfavourable all through the season for making the fine quality for which the former district was noted, while the crop from the last two continues to be principally disposed of locally. The quantity manufactured was similar to that for the last two years, namely, about four million lbs.

Travancore and S. India—From the Madras Presidency a few nice flavoured teas have been received, especially from among those grown on the Neilgherry Hills and the Wynaad

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Map of Ceylon Tea Estates Rs.9; colored Rs.10; Mounted in case Rs. 14.

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The larger amount, however, has come from Travancore, which, though of useful style with few exceptions, did not show the strong dark liquors which at one time were a leading feature of these teas. About 3 million lbs. have been shipped to this country against $2\frac{3}{4}$ and $2\frac{1}{2}$ million lbs. in 1896 and 1895 respectively.

POTASH AND ITS FUNCTIONS IN AGRICULTURE.

The following is a brief summary of an exhaustive paper on the above subject, by the Chief of the Division of Chemistry in the United States Department of Agriculture:—

1. The potash used in fertilizers and found in the soil has been derived from the decay of minerals containing it as an ingredient, and chiefly from feldspars.

2. During the progress of weathering, a portion of the potash in original rocks becomes soluble and is lost by lixiviation. As a rule, about 25 per cent. of the potash finds its way by this means into the streams and seas.

3. There is usually a less percentage of potash in the finer particles of soil than in the coarser particles, and this is due to the fact that the solvent action of water is more strongly exerted upon the finer particles.

4. The potash is quite evenly distributed, both in the soil and subsoil, there being only a slightly greater proportion in the deeper layers, doubtless to the fact that they have not been so thoroughly leached.

5. The solubility of potash in the soil is very different for different solvents, the least for the weak organic acids, and greatest for the strong mineral acids. Hot hydrochloric acid extracts from the soil about 20 per cent. of its total potash contents, which is about thirty-two times as much as is removed by a 1 per cent. citric acid solution.

6. A fertile virgin soil contains about 2 per cent. of total potash, or about 70,000 pounds per acre taken to the depth of one foot. A crop removing 50 pounds of potash a year could be grown consecutively for about one thousand four hundred years on such a soil before exhausting all the potash which it contains.

7. The soil retains a certain quantity of fertilizing material with such tenacity as to render it practically impossible for plants to withdraw the whole of it, thus protecting the future against the rapacity of the present.

8. The quantity of potash removed by various crops per annum varies greatly. The largest quantities are removed by beets, and the smallest quantities by cereals and cotton. Beets may remove as much as 100 pounds per acre, cereals about 30 pounds, and cotton about 23 pounds for the average crops as produced in this country. In Germany, beets grown for forage remove often over 200 pounds of potash per acre from the soil, clover hay about 74 pounds and tobacco the same quantity.

9. Tobacco contains a larger proportion of potash than any other common crop, *viz.*, about 40 parts per thousand of the dry leaves. Forage beets contain 35, potatoes 20, sugar beets 18, clover hay 19, beans 13, and cereals 5 parts per thousand.

10. There is about four times as much potash in the straw of cereals as in the grains, while in peas and beans the proportion is about as two to one.

11. A soil which yields about 0·01 per cent. of potash to a 1 per cent. citric acid solution, and contains about 0·30 per cent. soluble in hydrochloric acid, does not usually need a potash fertilizer.

12. The potash salts which supply the commercial potash fertilizers of the world have been deposited as the result of the evaporation of saline lakes charged with potassic materials.

13. The commercial potash of the world is derived almost exclusively from the neighbourhood of Stassfurt, in Germany. The quantity of crude salts annually mined is about three-quarters of a million tons, worth nearly three million dollars.

14. The high-grade commercial salts used for fertilizing purposes are manufactured from the crude salts, and are to be preferred when shipments are made to great distances and at high rates of freight.

15. The principal crude potash salts used for fertilizing purposes are kainite containing 12·5 per cent. of potash, and carnallite containing 9·9 per cent.

16. Tobacco waste, cotton seed hulls, and wood ashes also furnish important quantities of potash for fertilizing purposes.

17. Recovered marsh or swamp lands and lands containing large quantities of sand need, almost universally, a potash fertilizer. The percentage of potash in soils usually rises with their contents of clay.

18. The maximum effect from fertilization with potash is secured only when other plant foods are supplied in such a way as to make a well-balanced ratio, and where proper methods of culture are employed.

19. Lime is an important adjunct to potash fertilization, and, as a rule, should be added to a soil in large quantities wherever potash is applied.

20. The best kind of potash fertilizer is determined by local conditions, freights and the nature of the soil and the crop. Fertilizers containing considerable quantities of chlorine should never be applied to vineyards and tobacco fields.

21. In intensive pot or garden culture, where highly-concentrated plant foods are desired and where the cost of the fertilizer is unimportant, potash may be applied in the form of phosphate or nitrate.

22. In some soil potash salts, in common with other saline bodies, produce injurious effects by reason of their hygroscopic nature, attracting moisture, and, on drying, producing a cementation of the soil, which renders it impervious to water and impenetrable by the rootlets of plants.

23. Crude potash salts can be applied with benefit in the preservation of stall manure, but their value for this purpose is perhaps over-estimated.

24. Potash fertilizers should, as a rule, be applied in the autumn, or at least from two to four weeks before planting, and should be thoroughly worked into the deeper part of the soil in order to come into contact with the rootlets of the plant.

25. The germination of seeds, especially if they have a low vitality, is retarded by bringing them into direct contact with potash salts.

26. The application of crude potash salts to a soil which is not easily cemented may be useful during a dry season by reason of their power of attracting and holding moisture.

27. Potash salts favor the decomposition of mineral particles in the soil, and thus tend to add to the stores of plant food therein.

28. The application of crude potash salts to the soil tends to protect the crop from frosts by preventing the too rapid evaporation of moisture and by producing a more luxuriant foliage.

29. The too abundant application of potash to the soil may become injurious by reason of the retardation of the process of nitrification which it produces.

30. Crude potash salts, especially kainite, when added abundantly to a soil, are said to act, to a certain extent, as an insecticide or a preventive of disease, and when mixed with stable manure act as a preservative by checking the activity of the denitrifying ferments.

31. It is impracticable to give formulas for the preparation of fertilizers containing potash, since both the quantity of potash to by used and the form in which it should be applied are determined be local conditions, which cannot be taken into account in the preparation of directions for the use of fertilizers.

LIBERIAN IN THE STRAITS.

(*Continued from page* 150.)

Estimates. In the foregoing chapters I have endeavoured to impart all I know about "Coffee Planting" from the moment the seed is sown until the coffee is ready for sale, and I might now make a bow and say: "Ladies and Gentlemen, if I have succeeded in interesting you in a form of

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cultivation upon which the future of Malaya so greatly depends, I am amply repaid for the time and care I have devoted to these notes," but I feel that they would not be complete without an estimate.

In planting, as in most things in life, the prosaic and practical cash question figures largely, and people, however much they may be interested or amused, naturally like to know about the prospects of gain, or loss, by the venture.

I would have preferred to avoid this subject. Estimates are the most unreliable things in the world—one man will spend a hundred dollars where another would only spend thirty-five. One particular piece of good soil well looked after will give you a return of 10 to 12 pikuls per acre, whilst another will only give you one or two. And then there comes the price: if I estimate $40 a pikul when the price is $50 in the market, by the time the coffee is in bearing it will probably be down to $25.* However, I will give, to the best of my ability and knowledge, a safe and fair average estimate:—

Estimate for opening and bringing into bearing 100 *acres of Liberian Coffee.*

Average expenditure $80 per acre per year, including everything —buildings, machinery, supervision, manure, quit-rent, etc.

Crop one pikul per acre the 4th year of opening
three „ 5th „
five „ 6th „ and following years.

	1st year.	2nd year.	3rd year.	4th year.	5th year.	6th year.
Expenditure	$8,000	$8,000	$8,000	$8,000	$8,000	$8,000
Crop in pikul	...	...	...	100	300	500
Value of crop in $	...	...	...	$4,000	$12,000	$20,000
Surplus of—						
Expenditure	$8,000	$8,000	$8,000	$4,000		
Revenue	...	...	...	...	$4,000	$12,000

From the above it will be seen that I estimate a capital of about $30,000 to open an estate of 100 acres of Liberian coffee and on getting about 40 to 50 % per annum after five years on the invested capital.

Book-keeping and accounts. It is not sufficient that a planter should himself be satisfied that he has spent his money in the most economical way, he should also be able to show by his books and accounts, at any moment, what he has spent and how he has spent it; and how much he has paid an acre for weeding or felling, how much for picking per box, what his expenses were for curing a pikul, and so on. Each planter keeps his books in his own particular style but, as a guidance to those who have not yet adopted a fixed system of their own, I just mention the books generally used amongst planters, they are:

1. Register of Coolies; 2 Check Roll; 3. Distribution of Labour; 4. Stock book; 5. Cash Book; 6. Ledger; 7. Monthly Report Book. Of each of these I will give a *pro formâ* page.

If all these books are properly kept I think it will enable the planter to show pretty clearly how he stands and what is the financial position of his estate. The great secret of success, mercantile or otherwise, is always to know how you stand: if you can see your own position clearly, you have won half the battle. Book-keeping is of very great importance: without it you would be working in the dark, not knowing whether you were working cheap or dear, and you might be hastening to ruin, while imagining yourself all the time as rich as Croesus.

It is the old story again, a fool never knows that he is a fool, because the moment he sees it he ceases to be one. That is so with book-keeping, too. You never see how fast you are going the wrong way until you keep books, but when you do keep them you can see clearly enough and you pull up sharp.

Order, system, and a clear organisation of your books and accounts are the indispensable foundation of every great enterprise, and I think I may safely say that whatever little success I have scored in my life and whatever great calamities I have escaped, I owe it to my system of keeping my books and accounts in proper order and always up to date.

Treatment of coolies. Whether you plant coffee, tobacco, or anything else, you will never be successful unless you know how to treat your coolies and how to get on with them. It is just as essential for a young planter t know how to treat his coolies as it is for him to know how t treat his coffee trees. If the cultivation of the coffee tree is neglect ed we know very well what the consequence will be, but if th cultivation of your labour force is neglected, your knowledge an experience of planting, be it ever so great, will not save you fro failure. There are some planters who insist upon what they consi der their legal rights and drag the cooly into court and have hi locked up for every petty minor offence; others are too good an give in to the coolies in every case whether reasonable or otherwise others say, "Bother the court, I am my own court of justice," an they hammer and thrash their ideas of civilisation and good manner in and out of their coolies; others despise such rude treatment which they consider unworthy of a gentleman and a planter, an bring their coolies to reason by fining them 50 cents here and dollar there, and when the cooly receives his pay at the end of th month—or, rather, what's left of it—"that's where he feels it th most," as a popular song goes.

Some planters doctor their coolies themselves; all who are sic have to fall in, those to the right get a dose of quinine and those t the left a dose of castor oil. Others cure them with a rattan, and have seen some most wonderful cures effected with this patent medi cine, people half dead and paralysed turning summersaults which would have put the professional acrobat to shame. Then, again, have seen coolies who had scratched their little finger being carefull bandaged and nursed by the planter, fed on Liebig's extract of mea and port wine and carried about on a long chair. The proper treat ment will probably lie between these extremes. It is very difficul to say always what a planter should do; the best plan will be to give a few instances of my own experience with the treatment of coolies

I had contracted with some Malays to fell the jungle near som coffee in bearing. Through their own carelessness and fault they managed to drop a big tree right on the top of the coffee and smashe about sixty fine trees covered with berry; I cut them $5 for this and the morning after they left the estate about another 200 trees al around the same spot were found cut down. I offered a reward o $100 to catch the men; they were never caught or seen again. wish now I had not fined them $5, although I am still of opinion that they fully deserved it.

In another case a planter had been assaulted by his coolies. All hi coolies were striking and refused to go to work, the ringleaders were arrested, tried and sentenced to 14 days' imprisonment. When they came out of gaol they left the estate, the others all "gave notice" too and the planter lost them and had to get new men at great expens and inconvenience. What do you think was the origin and cause o all the row and trouble? The planter wanted to show his coolies hov much at heart he had their comfort, how much he wanted to mak them feel at home, and he therefore made a pretty flower garde in front of the cooly line; but the coolies did not appreciate hi good intention any more than they did the flower garden, ove which they walked, it being the shortest cut to the nearest well The planter grew wild at this, and gave orders that broken bottle should be strewn near and round about the path they had made acros the flower bed. One of the coolies in attempting to walk over it cu his foot, and wanted to stay at home on account of it; but the plant er insisted on his going out to work, which resulted in the cooly giving notice, whereupon the planter said you need not wait till th end of the month, you can go at once and he turned him out; the the other coolies said, "If he goes we go, and at once too." Whe the planter wanted to "go" for the most impertinent ones of the lot the whole crowd turned on him and gave him a good thrashing, with the result, as we have seen above, that the coolies were locked up Now I think this planter would have done much better and wiser b letting the coolies and their flower garden alone, although, I am sorry to say, that particular planter does not agree with me and is fully convinced up to this present day that he proved himself awfully smart and clever.

The third and last case which I wish to relate here is of a planter who had a very good overseer, a man who understood his work thoroughly and, which is quite an exception, kept the coolies under his thumb; he was really "bossing the show," and the planter had not to trouble himself about anything. But one fine day the coolies complained that this overseer was cheating and ill-treating them

* The local price for Liberian coffee is now only 19 dollars per pikul ($1\frac{1}{6}$ cent).— Ed., *P. O.*

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and they therefore came to the planter for protection and justice; they looked up to him, as their master, to deal honestly with them and between them and their overseer. He had now to choose between them and the overseer if he remained they, the coolies, would all go. What was he to do? The overseer was a good man and he did not wish to lose him; but the coolies would not listen to reason; if the overseer didn't go they would, every man Jack of them, and quickly, too. He would not give in, he kept the overseer and lost his coolies. Of course he had the protection of the law and the coolies were punished; but he lost them, all the same.

"Well," said the planter to me, "you disapprove, although in my own mind I have no doubt that I did quite right. I would never have been master again on my own estate, if I had given in. Of course it is very easy to criticise and to find fault with anything other people may do; but tell me, if you are so clever, what would you have done in my case?"

"H'm," I said, "I really don't know what I would have done in your case; but I don't mind telling you what I think you should have done. When you saw that the coolies were determined to go, you should have dismissed the overseer.

"What? Dismissed a man who had been working honestly in my interests and to my entire satisfaction simply because the coolies wanted it?"

"Yes, you should have dismissed him; but you should have told him quietly to get other coolies, and as soon as he had obtained them you should have said that, after careful reconsideration of the case, you did not think it fair to let the overseer go and you had therefore called him back, and whoever did not like it, might leave. I don't think anyone would have gone then. Or, if you really could do without them, you should have told them, after you had the new coolies, that you had decided in favour of the overseer and that therefore you did not require their services any longer. They probably would have told you then that they wished to stay, or they might have accused you of mean and false play in not informing them of this at the time, when they complained and when they could have obtained another billet, and that it was very hard on them to be turned out at a moment's notice with no other place to go to. Then you could have retorted: 'Yes, I quite agree with you, it is very mean; but that's just what I want it to be. Had I told you of my intention at the time when you put the knife to my throat, you would all have gone and left me in a fearful fix. Did you think I was such an ass? You were the scoundrels who gave me the moment's notice, and you left no other choice open to me than either to let my plantation go to the dogs or apparently to give in to you. I chose the latter. Now we are quits; clear out, and let this be a lesson to you for the future."

And the moral of all these little stories? Learn how to treat your coolies, be fair to them and reasonable, but don't interfere with them more than is absolutely necessary.

It is also your duty to see that the men get proper medical treatment when they are sick, and for that reason there should be a dispensary on every estate, and every planter should have some knowledge of how to render first help and assistance in case of accidents; but on the other hand, if the cooly is not sick and simply does not feel inclined to work, don't force him; he loses his day's pay and his Sunday and you should be satisfied with this, and you may be sure he will not keep it up very long if you don't object.

Never by any means attempt to administer medicine to a native if he objects to it. If you try to relieve a man suffering from fever by giving him some quinine, and he objects to it and wishes to be treated by his own people, you may be quite sure, if he dies, they will put it down to your medicine and to your treatment, and if he recovers he will be fully convinced that he would have been on his legs long before, had it not been for your interference and beastly drugs.

Try and keep neutral in all rows and disputes: with a little tact and diplomacy you will easily be able to humour both parties; thus, in the first instance, never deal direct with your coolies, but always through their overseers, except when they wish to put a complaint before you. In that case, however much you may be convinced of their being entirely in the wrong and telling you a lot of lies, don't send them away, don't abuse them, but carefully and patiently listen to them and promise them to enquire into the matter and to see that they get justice; follow Government's example about the Straits Military Contribution, say that the case is having your most serious consideration and put them off until they get sick and tired of it. Follow the wise example of a well-known Governor, who once received a deputation of planters, who laid their grievances before him; he listened to them patiently, he sympathised with them, he even quite agreed with them that they had a grievance, but what could he do? He was not the Governor of *their* State; and then there was the Secretary of State, who would not sanction any such proposals as the planters wanted to have introduced, even if he, the Governor, would submit them; and then he really could only advise H.H. their Sultan and their Resident. That's the way to do it, never refuse and never commit yourself in any way—that's wisdom and policy.

Don't forget that we planters are not here to give Solomon's judgment and to dispense the wisdom of a Haroun Al Raschid; our object is to plant coffee and to make it pay, and to avoid any dispute with coolies as well as everybody else, as far as in our power to prevent it. If the people have a serious case let them fight it out between themselves, or let them take it before a magistrate, who is paid for it, and trained to listen to endless lies and stupifying nonsense, and probably enjoys it; but especially never interfere between husband and wife, even if he gives her a good thrashing; let him, she likes it; if you interfere, she will take her husband's part and both will go for you.

If you are in a rage about a cooly or a kangany, don't dismiss the man in a hurry; always remember that nothing is easier than to turn a good man out on the spur of the moment, but it is very difficult to get other and better men to fill their places. Be careful, therefore, think twice over it, and then sleep on it for a few nights, before you finally decide to dismiss a man.

No more honourable testimonials can be given to the planter than the planter can give himself by being able to point to coolies and servants of his who have been with him for many years; this shows at once that the planter is a reasonable and good master and from that it may be judged that he is also a good and careful planter.

Don't always insist on your rights. If a cooly wants to go and you can spare him, let him go and don't throw any obstacles in his way; that's narrow-minded. Give him every assistance and help, even let him go without long notice, if you see that he is really bent on going. And if he wishes to come back, don't refuse him, because he had left you before: he has since been with other masters and he comes back to you because he has found out the difference, and it is no use cutting off your nose to spite your face. That man will be a better cooly to you than he ever was before—until he again wants a change. The easier you make it for your coolies to leave your service, the easier it will be for you to get others. A quiet dignified manner will always impress an Asiatic, and the less excited you are the easier you will be able to settle their disputes and troubles. You may be able to knock a man down, that is only a question of animal strength; but you will never be able to make the men look up to you with respect because you happen to be so much stronger: they may fear you and hate you but that is all. A sensible man and a good planter guides his coolies with his brains and not with his fists.

(*To be continued.*)

LIGHT RAILWAYS.

Below we give extracts from the report of the Chief Engineer for Railways in Queensland who recently visited America and Europe and has embodied his observations in a paper laid before the Colonial Parliament:—

Some misconception appears, I think, to exist as to what really constitutes a light railway, and the conditions which affect the cost of construction. It may not, therefore, be deemed out of place if I offer a few preliminary remarks in connection therewith, before describing in detail the various railways of that class which I had the opportunity of inspecting, and of which I gathered some particulars in the countries I visited.

The term "light railway" is, of course, merely a comparative one. The Queensland railways are, for instance, of lighter construction generally and adapted to lower speeds than those of the wider gauge in New South Wales and Victoria, whilst the portable railways 2ft. gauge, used in developing and working sugar plantations in this colony and elsewhere are of still lighter construction, and carry much lighter rolling stock than our standard lines.

A light railway may properly be described as one which, in its essential features, is a departure from the standard or normal railways of the country, either as regards the gauge or character of the works, with a view to ensure economy of construction.

The primary conditions which determine the class of railway and cost of construction are as follow:—

(*a*) The Axle-load.—This is the most important factor in railway

onstruction as it decides the weight of rail, which should be duly roportioned to the load it has to support, the bearing surface, or, in ther words, the size and spacing of sleepers, the quality of ballast o be provided, and the strength of bridges and other structures.

(*b*) The Speed.—This has also a material influence on the chaacter of the permanent way, whilst it also affects, to some extent, he strength and solidity of the works, and determines the descripion of rolling stock.

(*c*) The Gauge.—Of itself this has a far less effect on the quesion of cost than is, I think, generally supposed; for unless the xleload and speed are also reduced the saving due merely to a arrower gauge resolves itself into a rather insignificant decrease in he quantity of earthwork and ballast, with somewhat shorter leepers, culverts, and drains.

(*d*) The Nature of traffic.—This will determine the extent of uildings and other works required for its proper accommodation, as ell as for the protection and repair of the rolling stock.

Besides those just mentioned, local conditions have frequently an mportant influence on the cost of construction, and must not be lost ight of in comparing the relative cost of railways, such as—

(1) The natural features of the country, and its geological ormation.

(2) The facilities offered for the supply of constructive material; nd

(3) The price of labor.

It is not uncommon to hear comparisons drawn between the cost f railways in one country with those in another, or even in different listricts of the same country, where these conditions are widely dis-imilar, and where, possibly, with much the same amount of work to e executed, the cost of constructiou is unavoidably greater in one ase than the other.

In approaching the important question of how to extend the dvantages of railway communication to sparsely populated districts, he prospective traffic from which cannot reasonably be expected to ive a fair return for the outlay involved in the construction of our rdinary standard lines, it becomes necessary to consider the best neans by which the desired end can be accomplished in the most economical manner consistent with efficiency as well as requisite apacity.

The cost of construction may be reduced in one of two ways:—

(*a*) By retaining the standard gauge, but employing lighter olling stock and a less expensive class of permanent way; or,

(*b*) By adopting a narrower gauge, with light rolling stock and works duly proportioned thereto.

The first expedient would appear to hold out special advantages in connection with extensions of main lines or branches which may be expected to develop into important parts of the trunk system, By employing locomotives with no greater axle-load than that of the ordinary goods waggons, the rolling stock from the main line could be utilised in working the traffic. If also the speed were reduced a lighter rail with less ballast might be provided, but as there would always be the tendency to resort to the use of heavier locomotives to meet the exigencies of traffic, it would not, I am of opinion, be advisable to alter the design of the bridges or other substructures. If circumstances warrant it, a heavier rail and more ballast can easily be laid, but the strengthening of bridges and other works on lines in operation is always attended with more or less difficulty and expense.

The average cost of permanent way, including rails and fastenings, sleeper and ballast, in this colony may be taken as follows:—

First class—60lb. rails and 1,760 cubic yards ballast, £1,540 per mile.

Second class—41¼lb. rails and 1,100 cubic yards ballast, £1,135 per mile.

With a 30lb. rail, which would be capable of sustaining an axle-load of, say, 5 tons, equal to that of our ordinary goods stock, and 880 cubic yards of ballast per mile, the cost would be reduced to £934 per mile, a saving of £200 per mile as compared with our second-class lines.

Unless, however, under exceptional circumstances, I should not recommend the use of rails of less weight than 41¼lb. on lines of standard gauge: in fact, on economic grounds I would much prefer that a 60lb. rail should be fixed as the minimum weight, at any rate for all main lines and principal branches.

I have not suggested resorting to steeper gradients than are now usual, as experience has, I think, conclusively shown that this is not a direction in which it is wise to economise; for whatever saving is effected in first cost is more than counterbalanced by the increased expense in the future working of the traffic.

Coming now to the alternative proposal of a reduction in gauge, it must be clearly understood that while I am fully alive to the advantages of uniformity in gauge, and should not, under any circumstances, recommend a departure from the existing standard as regards extensions of our main system, I think adherence to the principle may be carried too far, and that, under certain conditions a departure therefrom would not only be expedient, but justifiable.

There are many districts in the colony, more or less isolated, which are a great disadvantage through the absence of economical means of transit for produce to market, but where the probable traffic would not warrant the outlay on lines of normal construction. It is most desirable, with a view to relieve the wants of present as well as to encourage further settlement in such districts, that railway facilities should be extended to them; and if this object can be attained by means of light narrow-gauge lines, I should not hesitate to recommend their construction.

As regards the particular gauge which should be selected in such cases, I have found it generally conceded by those who have had experience in the construction and working of narrow-gauge railways, that, unless for special purposes, it is not advisable to employ a less gauge than 2ft. 6in., and in the event of its being decided to depart from our present standard, this is the gauge I should recommend to be adopted.

Where a light traffic has to be provided for, a narrow-gauge railway offers the following advantages:—

1. Reduction in Cost of Construction.—In flat or easy country the saving due to reduction in gauge is comparatively slight, but where rough country is met with the saving may become considerable, as the narrow gauge line, by admitting of the use of sharper curves, lends itself more readily to the natural features thus avoiding excessive earthwork and lessening the extent of bridgework, culverts and other substructures. I estimate the approximate relative cost between a railway of 3ft. 6in. and 2ft. 6in. gauge in flat country with ordinary provision for waterways and small stations at intervals of, say, five miles apart, but without large bridges or fencing and where constructive material is fairly plentiful, to be as under:—

Railway of 3ft. 6in. gauge, with 41¼lb. rails, £1,800 per mile.

Railway of 2ft. 6in. gauge, with 30lb. rails, £1,375 per mile.

Thus showing a minimum saving in favor of the latter of £425 per mile. In this estimate the cost of permanent way for the 2ft. 6in. gauge, with 30lb. rails and 800 cubic yards of ballast, is taken at £805 per mile, or a reduction of £330 per mile as compared with that of a second-class road on the 3ft. 6in. gauge. It is impossible to give definite estimates without having reliable data based upon actual survey in each case. Speaking generally, however, I should say that in moderate country, presenting no special obstacles to be overcome, the saving effected by the narrow gauge would probably range from £600 to £1,000 per mile, but where broken or mountainous country has to be traversed, the difference in favor of the narrow gauge might be considerably greater. In the above estimates I have assumed that the usual quantity of ballast will be provided. Even should it be found expedient in some cases to use a less quantity in the first instance, it would, I consider, be necessary in order to ensure economical maintenance, to supplement it afterwards; and provision should therefore be made for the additional expenditure from capital account.

2. Lighter, and consequently less costly, rolling stock, as well as a more favourable proportion between paying and dead load. With our present goods waggons the proportion of tare weight to carrying capacity is, on an average, about 7 to 13, but with light stock suited to a 2ft. 6in. gauge there is no difficulty in obtaining a ratio of 1 to 3. Thus, in a train of, say, 150 tons, consisting of goods waggons and break-van of our present standard stock, the maximum paying load would amount to 60 per cent., whilst with the narrow gauge light stock the paying load would be as much as 70 per cent. of the gross weight. This would represent a substantial saving in working expenses, and should enable goods to be carried at lower rates than is practicable with the wider gauge.

3. The lower speed for which the light narrow-gauge line is only adapted, would obviate the necessity of level crossings, gates, and signals, and in many instances fencing might be dispensed with. The public roads may also be availed of where the gradients are suitable, so as to avoid the resumption of land and payment of heavy claims for compensation.

4. The narrow-gauge railway, with its light rolling-stock and low

speeds, would cost less to maintain than a line with heavier stock in it at higher speeds.

5. The light railway being of less than the formal gauge, would effectually prevent the heavy stock of the main line being used upon it.

If the same gauge were adhered to there would always be the temptation to employ the heavier engine from the main line to cope with the exigencies of the traffic, thus increasing the cost of maintenance if not damaging the permanent way and works.

On the other hand, the undoubted drawbacks incidental to a break of gauge, and the adoption of a different class of railway to that now in operation must not be lost sight of, and should have due weight in considering the merits and financial aspect of each particular case. The chief objections appear to be the following:—

(1) The cost of transhipment of goods at the points of junction with the main line, as well as, in a minor degree, the inconvenience to passengers.

(2) The necessity of providing special equipment to work such lines, which must be sufficient to meet the demands of the maximum traffic. During slack seasons, therefore, a portion of the rolling-stock would lie idle, as it could not be utilised on the main line or conveniently transferred to other narrow-gauge lines.

As regards the first of these objections, I ascertained that the cost of transhipping goods in Europe varies from $2\frac{1}{2}d.$ to $4d.$ per ton, but as the rates of labour here are nearly 100 per cent. higher this item of expense cannot be estimated at less on an average than, say, $6d.$ per ton.

Before deciding to construct any branch line on a narrow-gauge the expense of transhipping should receive due consideration, and an estimate be prepared on the probable tonnage of goods. If it can be shown that the annual expense of transhipment would exceed or even equal the amount of interest on the additional capital required to construct a line on the standard gauge, it would be a question for consideration whether under these circumstances it would not be wiser to incur the increased outlay for the wider gauge in the first instance, than submit to perpetual charge against working expenses as the result of a break of gauge.

Various attempts have been made from time to time to minimise the inconvenience and expense of transhipment by the use of special appliances, such as the transfer of the bodies of trucks from one underframe to another, but none have proved altogether satisfactory, and so far as I observed, are only used in dealing with particular description of goods where it is important to avoid handling as much as possible. Experience seems to indicate that the least expensive and most expeditious method of overcoming the difficulty is by manual labour, suitable platforms, of course, being provided between the wide and narrow-gauge lines of rails for the purpose. For the transhipment of machinery and other heavy articles over head, gantries or travellers are usually employed, and transportation cars or "rolling cradles" are also, in some instances, made use of to convey the narrow-gauge waggons over the wider line and *vice versâ*. The latter expedient, although hardly suitable for the requirements of general traffic, is useful when it becomes necessary to send the narrow-gauge stock to the central workshops for repair, so as to avoid the expense of erecting special buildings for the purpose in connection with the narrow-gauge lines.

Mr. Stanley proceeds to give some particulars of the light railways which came under his observation during his recent travels, and adds the following

CONCLUSIONS AND RECOMMENDATIONS.

The light railways on the Continent, more especially those in Belgium, are generally admitted to have proved successful in attaining the object with which they were originally constructed—namely, to aid in the development of agricultural, industrial, and commercial pursuits, and have given, moreover, in many instances, apart from the indirect benefits accruing, a fair return of interest on the capital invested.

Their success is, I think, in a large measure to be attributed to the adoption of light rolling stock, combined with low speeds, to the simple character of the station arrangements, the absence of expensive accessories in the way of signals, and to the fact that, as far as practicable, the public highways are utilised so as to avoid the purchase of land. Although light sections are frequently used, the rails are, as a rule, somewhat heavier than is strictly necessary for the weight to be supported, but this departure is no doubt a wise one, as tending to economy in future maintenance.

As regards the practice of constructing these railways along the public roads, as generally followed on the continent, I am aware that the experiments made in that direction in this colony have not been received with much public favour. This, I think, has been due to the mistake of utilising the roads for the purpose of the ordinary type of railways, instead of adapting the class of railway to the conditions pertaining to road traffic. I feel satisfied that if light railways of similar character to those I saw on the Continent were constructed here, and low speeds insisted upon very little if any exception would be taken to their being run alongside the public roads.

The question of uniformity in gauge as affecting these secondary railways is not, I consider, one of much importance, except as regards such lines as there is reasonable prospect may be connected at some future time. But it is essential that whatever gauge be decided upon should be such as is adapted to the class of traffic to be served and afford the requisite carrying capacity.

The majority of these "district railways," as I think they might appropriately be named, will either be isolated lines or feeders to the main lines, more or less remote from each other, and there is not likely to be much opportunity of interchanging stock. It would, however, be convenient to adhere to one gauge as far as circumstances permit, so as to avoid multiplying the types of vehicles in use.

Whilst it is a fact that railways on a 2ft. gauge are being successfully worked in different parts of the world, and are well suited to certain kind of traffic, especially in mining districts, where the materials to be carried are heavy rather than bulky, I would advocate in preference the adoption of a gauge 2ft. 6in. as better adapted to purposes of general traffic, affording greater comfort to passengers, and larger carrying capacity in proportion to the capital cost. The rolling stock for this gauge can be constructed of nearly the same width as our present standard, and at the reduced speed for which it is adapted is perfectly stable and safe.

Keeping in view the conditions which, as already-pointed out, should determine the adoption of narrow gauge light railways instead of adhering to our existing type, I would recommend:—

(1) That one or more suitable districts should be selected in which to construct experimental railways on the 2ft. 6in. gauge.

(2) That special surveys be made for the purpose of preparing careful estimates, in order to ascertain in the saving to be effected as compared with the cost of a line on normal gauge.

(3) That, as the success of the experiment will largely depend upon the lines being properly equipped, the first supply, at any rate of rolling stock should be obtained from Europe, from manufacturers who make a speciality of its construction.

Respecting the substitution of electric for steam traction (a subject to which I have alluded as receiving attention at the present time from some of the leading railway managers in America), I think it is well worth consideration whether it might not be applied with advantage in connection with some of our suburban lines, where a frequent service of light trains would be likely to encourage passenger traffic, and enable the railway to compete on more equal terms with the tramways.

I would, therefore, suggest the desirableness of obtaining reliable estimates of the cost of providing the necessary power, laying down a third rail or cable as might be deemed best, and purchasing a suitable equipment of motor and other cars.—*The Sugar Journal.*

TWO BUCKETS AND A PIPE.

Take two common water-buckets; connect them at the bottom with a small pipe. Now undertake to fill one of them with water you perceive at once that the water tends to fill the other pail also.

"What's the use of saying that?" you ask me. "Every fool knows that water in connected reservoirs will assume the same level. Quite so. Yet the wisest men on earth didn't know it once. If the ancient Romans had known it they wouldn't have gone to the trouble and expense of building their great aqueducts. Oh, dear! oh, dear! After a thing is pointed out what a lot of people are able to see it!

But to see it the *first* time? Ah! that takes eyes. To explain it the *first* time? Ah! that takes brains. The blood circulated through pipes in the human body thousands of years before anybody ever suspected it. Isn't that queer? Now, there is a matter——but let's have an example or two first, and the theory afterwards.

A father writes thus about his daughter: "During the summer of 1890 my daughter, Rebecca, got into a weak, languid way. He

ppetite was poor, and after eating she had so much pain at the hest and sides that she didn't know where to put herself. She also omplained of pain in the pit of the stomach, in the throat, and at he back of her neck. Cold, clammy sweats used to break out all over er. Her breathing became short and laboured, and at times she ould not even lie in bed on account of it. She consulted two hysicians, who prescribed for her without avail.

" This was her general condition until January, 1893, when she egan taking Mother Seigel's Curative Syrup. This preparation ertainly had a remarkable effect. One bottle alone greatly relieved er. She relished her food, and got stronger. By simply continuing use this medicine in three months she was completely cured. ince then she has been well as ever she was. My married aughter, who has suffered from indigestion for a long time, seeing hat this remedy had done for Rebecca, took it also, with the same ood results. Yours truly, (Signed) Bartholomew Bell, Grocer, &c., rompton, Northallerton, October 25th, 1893."

" All my life," writes a woman, " I have suffered more or less rom sickness and spasms. I always felt weak, tired, and languid, nd had no desire for company. I had a bad taste in the mouth, and requently felt sick and prostrate. I had no relish for food, and fter eating, had pain at the chest and side. Such was my manner f life for years. Two years ago my sister told me of Seigel's Syrup ; tried it, and even a few doses relieved me. I continued taking it, nd soon my appetite improved, and my food digested. Since that me I have felt quite a new being—*so light-hearted and strong.* What a pity for me that I didn't know of Seigel's Syrup years before. ut better late than never. Yours truly, (Signed) Mrs. Annie oodger, 20, Bardolph Street, Leicester, May 10th, 1893."

" From childhood," says another, " I have suffered from indiges- ion and sick headaches. I never felt as if I wanted food, and after ating I experienced the usual pains and distresses of the confirmed yspeptic. The attacks of sickness and headache were often no less han dreadful. So-called medicines and remedies were, at the best, nly temporarily useful. In January, 1892, a friend living at Iackney, told me of Seigel's Syrup. I used it, and it cured me. *never felt so well in my life as I do now.* (Signed) Miss L. White, 2, Barnsbury Road, Islington, London, April 20th, 1893."

Now, see. Evidence like the above (though much more impressive) roves that Mother Seigel's Syrup either cures or relieves almost very known complaint. Yet it never was (nor is it now) recom- ended for any disease except indigestion and dyspepsia. What is he inference? That nearly every knowu complaint is caused by ndigestion and dyspepsia—is, indeed, a symptom of it.

" But everybody belives that nowadays," you say. Not everybody, ut very many. The rest will bye-and-bye. Although the fact is ld as Adam, the *discovery* of it is new. Yet the principle will pre- ently be as obvious to all as it now is to few.

MARKET REPORT.

COFFEE.

Messrs. R. J. Rouse & Co.'s Weekly Coffee Report (March 25, 1898) says :— A slow market has been experienced at Public Sale this week and values n nearly every case were in buyer's favour.

About 6,300 bags East India were offered and met a slow demand at declining rates for all except the finest grades and favourite Home Trade narks which were fully maintained.

Central American kinds have been difficult to dispose of and prices nark a further fall of 3/- to 4/- except for fancy marks of Costa Rica vhich sold steadily.

Futures still continue to decline on the heavy Brazilian receipts and quotations have given way 6d since our last, but the market closes steady.

Messrs. Wm. Jas. and Hy. Thompson's Report of the Colonial Markets for he Week ending March 23rd, 1898, says :—Bank rate 3%. Bombay Exchange closes at 1s. $3\frac{2}{32}$d. Brazil Exchange $6\frac{5}{32}$d. Rupee paper $31\frac{1}{2}$% $62\frac{1}{4}$. Silver 26d. per oz.

The heavy supplies brought forward have again met with a poor demand, and have only been partly sold at a further decline of 1s to 2s per cwt. London cleaned Central American kinds are very difficult of sale at even a greater decline, whilst fine marks of East India and Costa Rica realize full value. Brazil markets are lower, owing to heavy receipts, good average Santos having been sold down to 25s 6d c. & f.

Daily receipts averaged 11,300 bags in Rio and 13,100 bags in Santos.

Futures have continued dull and quiet, and close 3d to 6d per cwt. lower, viz. :—Good average Santos in Havre, May delivery, fcs. 33.75, in Hamburg pf. 28, and No. 7 low ordinary Rio in New York $5.00.

To-day's London official quotations are :—

	March	May	July	Sept.	Dec., '98.	Mar., '99.
SANTOS ...	27/3	27/6	27/9	28/6	29/-	29/6

We quote :—

Ceylon, mid. to good mid.	95/@107/	Costa Rica, mid. to fine...	76/@106/
Do. small to low mid.	80/ ,, 93/	Do. ord. to low middling.	50/ ,, 74/
East India, mid. to good mid ..	76/ ,, 92/	Jamaica, good to fine ord.	38/ ,, 52/
Do. small to low mid.	58/ ,, 75/	Do. greenish to fine colory...	70/ ,, 125/
Guatemala, mid. to fine...	70/ ,, 95/	African ...	27/ ,, 29/
Do. good ord. to low mid...	54/ ,, 68/	Columbian, ordinary ...	35/ ,, 40/
Salvador, good ord. foxy greenish...	40/ ,, 42/	Do. good ord. to low mid...	42/ ,, 67/
		Do. mid. to fine...	72/ ,, 95/

Receipts in Brazil to 23rd March compare as follows with previous years :—

	1897-98. Bags.	1896-97. Bags.	1895-96. Bags.
RIO	3,566,000	2,829,000	1,939,000
SANTOS	5,428,000	4,411,000	2,727,000
	8,994,000	7,240,000	4,666,000

In Sale—

45 casks and tierces 12 barrels Plantation Ceylon 60s to 124s ; 5,468 bags East India, viz. :—1,161 bags Mysore 47s to 125s ; 2,665 bags Coorg 54s to 110s ; 702 bags Neilgherry 53s to 98s 6d ; 448 bags Wynaad 85s to 104s 6d ; 92 bags Naidoobatum, part sold ; 194 bags Shevaroy, part sold, 59s 6d to 98s ; 143 bags Nelliampathy 52s to 96s 6d ; 63 bags Salem 59s 6d to 95s ; 173 bags Mexican, part London cleaned, part sold, 36s to 78s ; 38 bags Vera Paz, bought in ; 2,391 bags Costa Rica, part London cleaned, chiefly sold, 41s to 104s ; 1,857 bags Guatemala, part London cleaned, part sold, 34s to 78s ; 858 bags Salvador, part London cleaned, part sold, 63s to 72s ; 159 bags Nicaragua 30s to 44s ; 2,031 bags Columbian, part London cleaned, chiefly sold, 39s 6d to 80s 6d ; 23 bags Nyassaland, triage, sold ; 137 packages Mocha, bought in ; 26 bags Liberian Johore 31s ; 15 bags African Liberian 22s ; 1,014 barrels 155 bags Jamaica, part London cleaned, good part sold, 27s to 92s 6d ; 8 bags Montserrat, bought in ; 246 bags Guayaquil, part sold, 31s ; 53 bags Peruvian, part sold, 35s 6d.

Landed last week ...968 *tons. Deliveries* ...636 *tons. Stock* ...11,089 *tons.*
Do. last year ...865 ,, ,, ...663 ,, ,, ... 9,384 ,,

TEA.

Messrs. Gow, Wilson and Stanton's Indian, Ceylon, and Java Tea Report, dated March 25th, 1898, says :—

QUANTITY BROUGHT TO AUCTION IN LONDON

FROM 1ST JUNE TO DATE.

	Indian.	Ceylon.	Java.
1897-1898...	1,400,521 packages.	975,605 packages.	35,534 packages.
1896-1897...	1,425,904 ,,	914,183 ,,	35,289 ,,

35,007 *pkgs.* INDIAN
19,839 ,, CEYLON
583 ,, JAVA
} Total 55,429 packages were offered in public auction this week.

Home Consumption during the past nine months shows a slight falling off as compared with the same period last season ; this in face of increasing imports, is unfortunate and more than ever emphasizes the necessity for fostering outside markets.

It is possible that the direct services now organised between India and Ceylon, and New York, will have a considerable influence upon the trade with North America, as a decided preference is given to Teas which are really of "direct import" and arrive straight from the country of production.

GORTON SHIRTING.

FINE Gorton Shirting, F. No. 4, in pieces of about 80 yards, at $4\frac{1}{2}$ annas a yard.

A. D'ROZARIO AND CO., LD.,

W. MADRAS.

Movements of Tea in United Kingdom from 1st June to end of Feb., as shown by Custom House Returns.

	Imports.			Home Consumption.			Exports.		
	1897-8.	1896-7.	1895-6.	1897-8.	1896-7.	1895-6.	1897-8.	1896-7.	1895-6.
British E. Indies ...	130,578,140	126,224,591	115,116,420	92,585,921	91,934,138	90,876,071	4,184,176	4,153,769	2,952,104
Ceylon	72,004,382	71,026,668	63,326,174	64,850,518	62,741,070	57,655,890	7,630,999	6,820,319	5,483,158
China	29,956,882	31,619,741	37,248,322	12,070,858	14,900,639	17,111,290	14,761,852	15,335,133	13,899,929
Other Countries ...	5,561,372	4,436,751	7,302,452	3,447,104	3,423,459	3,200,547	712,104	684,764	801,396
Total lbs. ...	238,100,776	233,307,751	222,993,368	172,954,401	172,999,306	168,843,796	27,289,131	26,993,985	23,136,587

Analysis of above export of Tea from U. K. during the last two years (not including transhipments).

	Indian.		Ceylon.		China.		Other Countries.	
	1897-8.	1896-7.	1897-8.	1896-7.	1897-8.	1896-7.	1897-8.	1896-7.
Countries in Europe	2,302,450	1,595,428	4,782,450	3,751,696	9,924,875	8,194,688	495,588	511,484
United States	454,313	805,104	952,614	920,040	1,016,305	1,856,173	46,267	42,323
British N. America	653,068	1,160,889	897,052	1,374,648	696,838	2,284,108	9,794	29,883
Other Countries	774,345	592,348	998,883	773,935	3,123,834	3,000,164	160,455	101,074
Total lbs. ...	4,184,176	4,153,769	7,630,999	6,820,319	14,761,852	15,335,133	712,104	684,764

Indian. No change has taken place in the market, the chief demand being for good liquoring Teas, poor descriptions still ruling at very low prices. The Official Wire from Calcutta gives exports from 1st April to the middle of March as lbs. 133,920,000, against lbs. 131,520,000 for same period last year.

Week's av. of Tea sold on Garden Account, 1898, 24,480 pkgs., av. 8·47d. 1897, 22,089 pkgs., av. 8d.

	1898.		1897.		1st June to date 1897-8.		1st June to date 1896-7.	
	Pkgs.	Price.	Pkgs.	Price.	Pkgs.	Price.	Pkgs.	Price.
Assam ...	14,038	9·60	9,221	9¼	493,071	9·91	495,368	10·21
Cachar & Sylhet...	6,439	6·50	10,402	7	271,941	6·93	260,394	7·42
Chittagong ...	149	7·25	—	—	5,686	7·15	3,298	7·48
Chota Nagpore ...	26	5	—	—	1,666	5·03	1,819	5·11
Darjeeling ...	1,069	11·40	—	—	66,385	11·09	57,915	1/·46
Dooars ...	2,593	7·17	2,077	7⅝	126,241	7·48	127,774	7·56
Kangra, &c. ...	—	—	—	—	7,975	7·17	5,685	7·12
Neilgherry ...	13	4·25	136	7	5,964	6·80	3,864	7·02
Terai ...	—	—	85	8	19,976	7·19	13,488	7·21
Travancore ...	153	5·25	168	7½	28,240	6·40	26,606	7

Total sold on Garden Account 1st June to date 1898, 1,026,673 pkgs., av. 8·76d. 1897, 996,209 pkgs., av. 9·11d.

Comparative prices of Indian Tea in London:—

		1898.	1897.	1896.	1895.
Dust.	(Fair ordinary, dark liquor) ...	3½d	4½d	4¾d	4½d
Fannings.	(Red to brown, strong rough liquor) ...	3¾d	4¾d	4d	5¼d
Broken Tea.	(Brownish to blackish, strong liquor) ...	6d	7d	6d	7½d
Pek. Soug.	(Blackish greyish, useful liquor).	6¼d	7½d	6¼d	8d
Pekoe.	(Greyish to blackish some tip, useful liquor) ...	7d	8½d	7¾d	8½d
Pek. Soug.	(Blackish greyish, inferior liquor).	4¾d	5¼d	5¼d	6½d
Pekoe.	(Blackish, greyish, some tip, inferior liquor) ...	5¼d	6d	5¾d	7d

Ceylon. Only 19,839 packages were brought forward, against 27,34 last week, the reduced supply causing a steady demand with generall firm prices. Week's avge. 7·22d., agst. 8¼d. last year.

Ceylon Tea sold on Garden Account 1st January to date 189 270,209 pkgs., av. 7·67d. 1897, 241,727 pkgs., av. 8·12d.

Comparative prices of Ceylon Tea in London:—

		1898.	1897.	1896.	189
Pekoe Soug.	(Ordinary leaf; fair liquor) ...	5¼d	6¼d	6d	7¼
Pekoe	(Ordinary leaf, little twist; fair liquor) ...	6½d	7½d	7¼d	8¼
Pekoe Soug.	(Rather bold leaf; indifferent liquor) ...	4½d	5d	5d	6½
Pekoe	(Somewhat bold leaf; indifferent liquor) ...	5d	5¾d	5½d	7

Java. The small auctions passed with good spirit and steady price 11,244 packages were offered for sale in Holland on the 18th inst.

Bank Rate 3 per cent. Exchange on London three months sight:— Calcutta 1/3 31/32. Colombo 1/3 31/32.

PUBLIC SALE OF SOUTH INDIAN TEA.

(Average for all India 8·47*d.*) *March 25th.*

Garden.	Total.		Average.	Broken Org. Pek. or Flowery Pekoe.		Pekoe and Unassorted.		Broken Pekoe.		Pekoe Souchong.		Broken and Souchong.		Fannings, Dust, and Various.	
	Quantity		Price.	Quantity	Price.	Quantity	Price.	Quantity	Price.	Quantity	Price.	Quantity	Price.	Quantity	Price.
Neilgherry															
Dunsandle ...	13½c		4¼	...	...	...	...	4½c	4¼ 5	9½c	4¼	...	...	...	...
Travancore ...	**153**		**5·25**												
Goatfell ...	113		5¼	...	...	44	5	36	6¼	30	4½	...	...	3	2¼
Riviera ...	40		5¼	...	...	31	4⅜	9	6½	...	...	...	...	...	...

PLANTING OPINION.

A WEEKLY JOURNAL

WRITTEN BY PLANTERS FOR PLANTERS.

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SUBSCRIPTION.—Advance Rates : Yearly, Fifteen Rupees ; Half-yearly, Eight Rupees ; Quarterly, Five Rupees, and Monthly, Two Rupees, including postage. Single Copies, Eight Annas.

ADVERTISEMENTS.—From the 1st October, 1897, the charge for line advertisements will be : 4 as. per line for the first, 3 as. for the second, and 2 as. for the third and succeeding insertions. Five-line advertisements from Subscribers will be inserted for three issues for one rupee ; non-Subscribers will be charged two rupees.

DOMESTIC OCCURRENCE.—The fee for inserting a domestic occurrence will be *One Rupee* for each insertion, payable in advance.

N.B.—Remittances should be sent to the Manager, "Planting Opinion," Esplanade Row, Madras.

IMPORTANT NOTICE.

The Business Offices of this paper having now been removed to Madras, all remittances should be made payable to the Manager of *Planting Opinion*, 11 and 12, Second Line Beach, Madras, who will also attend to all advertisements, &c.

Letters to the Editor should be addressed to Coonoor, as usual.

SEASON REPORTS.

NOTICE.

TO OUR SEASON REPORTERS.

Please post your next reports to reach Madras on Friday, the 29th April, 1898.

Season Reports should be sent to the Printers, Messrs. ADDISON & Co., direct, and not to *Planting Opinion* Office.

S. E. Wynaad. DEVALA, 20*th April.*—*Weather.*—There was no rain and no change in the weather since my last report, except on the 17th, 18th and 19th we have had a few showers, which did no good to the district ; it is very hot. The spikes are crying out and beginning to fade. *Health.*—Dysentery, diarrhœa, fever, colic and sore-eyes are prevalent.

Coorg. POLLI BETTA, 20*th April.*—*Weather.*—Rain on Sunday and Monday last, the 17th and 18th instant, from 30 to 60 cents. *Crops.*—Rain has started spike, but more rain needed to insure good set. Not unlikely that the needed rain will come. There is an abundance of good spike on the trees. *Labour.*—Hot weather supplies only retained. Moplahs and Thiyas at 4 annas a day are over-running the country.

Nilgiris. COONOOR, 20*th April.*—*Weather.*—The weather so far has been shamming in a most shameful manner. Sound and fury to any extent, but of the needed rain but little. I got 37 cents on the 17th and 15 cents on the 18th, with extremely high and cold winds. Kotagiri and Kil-Kotagiri seem to have got all the rain so far. Rain is still badly needed all round. Badagas are still busy planting up their fields, and it is consequently almost impossible to get them for plantation work. 21*st April.*—Last night 3 inches 27 cents !

KULLAKAMBY, 21*st April.*—*Weather.*—The rain has at last come, and though only quarter of an inch has fallen, there is promise of more, as the clouds are gathering, and the weather cloudy for the last few days. *Crops.*—Good promise of a fair crop, if the rain is sufficiently abundant, though some blossom has been burnt off. *General Health.*—Some fever still continues, but the general health is improving. *Labour.*—Plentiful ; some of the lower estates will soon dismiss the majority of

their coolies till June; the higher ones are still picking some crop, and all are putting in manure. *Interesting Items.*—A local sportsman has rid the district of a tigress and two cubs. The proud father of this once happy family is reported to be still at large.

Nellakotta, 19*th April.*—*Weather.*—"Rain, rain everywhere, but not a drop for us." At least, not as much as we need; 12 cents fell here on 16th and 6 last night. Heavy rain on the plateau on Saturday, and showers every afternoon to N. and N. W., but they systematically miss this district. *Crops.*—Spike has not suffered to any appreciable extent, and rain would ensure a real good crop. But it must come quickly now to be of service, as the small showers we have had have started the spike. *Plant-diseases.*—Coffee looking remarkably well, and quite free from leaf-disease. *General Health.*—Colds and fever amongst coolies. Planters suffering from the effects of "tension," about as horrible a disease as there is. *Labour.*—Ample. *Interesting Items.*—The large railway scheme proposed by the Madras Government includes a branch line from Erode to Nanjangud. When will the latter be linked with Gudalur? At the Greek kalends probably.

NITREFYING EARTH AS MANURE.

A Revolution in Manuring.

The scale of progress in the art of supplying nitrogenous manures to crops has been, on the whole, extremely rapid in the last half-century. Perhaps the rapidity of motion has been more in the theoretical and experimental line than in the fields and farms of the country, though there is no doubt that a vast change is observable there, as well as in agricultural research stations and laboratories. In popular estimation the original and most natural nitrogenous manure is undoubtedly the droppings of animals, which so many still hold to be the king of all manures. As the supply grew short and yearly more expensive, guanos, nitrates, sulphate of ammonia, and oil-cakes of various descriptions attracted prominent notice. So widespread, indeed, was, and still is, the demand for these so-called artificial fertilizers, that many supplies have already been exhausted, while we are within measurable distance of the total exhaustion of all known deposits of guano and nitrate of soda. Sulphate of ammonia, which is a bye-product of coal gas, is threatened by the daily increasing use of such substitutes for gas as electricity, acetylene gas, petroleum gas and so forth. Oil-cakes of course remain, but the supply is limited, and in a short time, were the demand increased, prohibitive prices would rule.

At this stage, general attention was and now is still attracted to what have been truly called the Nitrogen factories of Nature. The most familiar of these is the wonderful process of nitrogen collection that takes place in the root nodules of leguminous, *i.e.*, pod-bearing, plants. This process, which has met with universal acceptance by scientists, is little understood out here, though the practice of using leguminous plants as a manure for other crops seems well nigh as old as agriculture itself. The ancient Romans were adepts in its use, while still older is the custom that obtains in some parts of Southern India and Ceylon. Opinion is a great deal divided as to the best methods of utilizing the immense assistance that legumes can render to the intelligent agriculturist.

The second, and perhaps an even more important, Nitrogen factory worked by Dame Nature is that which is located i the surface soil of every non-barren soil in the wide worl We refer to the work of the Nitrefying Bacteria, the late use of which has suggested these remarks.

The existence of these bacteria is probably known to a who possess the rudiments of agricultural knowledge, but has been reserved for late years to demonstrate their full an true significance in Nature's cycle. Briefly, these bacteri are minute organisms that convert, by feeding thereon, th insoluble humus and vegetable matter in the soil into nitrate which are readily absorbed by the roots of plants. Thei action may, in a popular way, be compared to that of catt who convert the scattered and otherwise useless herbage the fields and forests into the valuable cattle-manure.

The conditions that favour the development of ou useful little allies are, first of all, of course, the presence sufficient food in the shape of vegetable remains. certain temperature is needed also, likewise a requisit amount of moisture, and, above all, free access to air. I Europe these conditions are usually only found combined certain seasons of the year, to wit, in summer and earl autumn. In early spring and winter their animate lif is suspended, and it takes an appreciable time befor the results of their labours can be appreciated by the crop to whom they minister. As it is precisely in early sprin that nitrates are most required and are most conspicuou by their absence, most interesting trials have been made i Europe to help these bacteria in their work. Experiment were made in France in taking soil from the field in autumn when the bacteria would otherwise think of retiring t private and unconscious life, and keeping this soil through out the winter in a warm room. The addition of moisture and frequent stirring up of the soil, enabled the bacteria t continue uninterrupted their useful work of the formatio of nitrates throughout the winter. Chemical analysis this protected soil and soil left *in situ* in the field conclu sively proved the vast superiority in nitrates of the forme over the latter. But this was not enough. A practica demonstration was needed. For this purpose a certai number of experimental plots were set aside and planted.

One series was manured with cattle-dung, and in additio with 2 cwt. of nitrate of soda (containing 15 per cent. nitrogen) per acre. The other series received an equa quantity of cattle-dung and in addition 2 cwt. of nitrefyin earth per acre. This earth was simply natural soil take from the field in autumn and treated, as already describe during the winter. These experiments were first unde taken in 1896, repeated in 1897, and conducted independ ently at different places and with different crops. Mr. Bau of the Ceylon Manure Works, in bringing the results these experiments to public attention, quotes from a rece report of the French Minister of Agriculture:—

"During their growth the plants, which were thus differenti manured, showed no difference in appearance, and when the produc was taken from the fields it was found that in most instances better crop was obtained from the plots which had received this nitr fying earth than from those which had received the nitrate of sod To still further demonstrate the influence which this nitrefying eart had on vegetation, two plots were set aside and planted. One receive an application of 2 cwt. of nitrate of soda and the other of 2 cw of nitrefying earth without any other manure being added, nor ha the two plots been manured the previous year. The results aga justified expectations, for the crop from the field which had receiv the 2 cwt. of nitrefying earth exceeded by about 10 per cen the crop from the field which had received the 2 cwt. of nitrate

da (which latter was equal to an application of 5 cwt. of best ite castor cake per acre). This favourable action of the nitrefying rth is not to be attributed to the insignificant quantity of nitrates roduced into the soil, but to the intervention of the micro-organ-ns, which, being maintained in full activity during winter, con-ued their work of fixing the nitrogen from the atmosphere and of ndering it available for the plants."

These remarkable results are surely enough to command e earnest attention of planters. The guiding principle of e experiments is, it must be noted, to remove and store e bacteria-infested soil at the moment of their greatest tivity, and just before the commencement of a season ien they sink into a comatose state. Subsequently this soil which has been kept under most favourable conditions—ould be applied to the field at the end of the inclement riod and at a time when plants are mostly in lack of trates, etc., and the conditions for their formation are vourable. It is not difficult to suggest corresponding periments in India, but our conditions being so dissimilar, is hopeless to expect them to be fully successful without pert assistance.

In districts afflicted with a heavy South-West Monsoon, e soil should be removed before the rains burst—as cessive moisture is as bad as frost to the well-being of the cteria—and might be applied directly they cease. In her districts where the conditions vary, different seasons ould be chosen. For instance, in a cold frosty locality with orth-East rains, September or October would be a suit-le month to store the soil, while early in February or the ginning of March might be chosen for its application.

NOTES.

a prices and con-sumption.

Readers of our market reports will find scant encouragement in Gow, Wilson and Stanton's remarks the continued decrease in duty payments since Decem-r last, accompanied by as steady a fall in price. March, owever, has shown an improvement, we are glad to note, clearances at least.

advertisers.

"Of" complains to us very bitterly of the way in which some adver-sers decline to reply to communications sent them in nswer to their advertisements. He suggests that if the dvertiser is so shy of disclosing his personality (in which se we would advise him not to advertise at all), he might least answer by means of an unsigned and unaddressed C.

good hedge plant.

"A useful fence or hedge plant will be found in the Cœcelpina" (*Log Wood*) writes a correspondent. Planted close, it is a strong nce, since its thorns keep goats and cattle from coming ear it. Treated as the Kutch wood of Burma, boiled in pen iron pans, the log wood juice is extracted, so saving reatly in freight home, otherwise the fencing should be pped every three years, the sticks "barked" and shipped me. It is a commodity commanding a sale and good price. grows wild in the Deccan, Central Provinces and engal, also in Burma. In these days of short crops, it might be worth planting at least as hedges, occasionally bringing grist to the mill.

Coffee in Upper India.

Firms in Calcutta are gradually turning their attention to coffee, writes a subscriber, one having planted up nearly one hundred acres, since high exchange has so adversely affected the meagre profits of all the low-priced qualities of tea. Some fifty years ago there were 70 acres of coffee flourishing where the great cotton mills at Bowreah, opposite Budge Budge, are erected. Some fine native grown coffee, 17 feet high and 38 years old, grown under shade, in good heart, and for the past four years not a speck of leaf-disease has been seen. The proprietor—happy man—did not know what it was like till it was carefully described to him. Coffee is grown in a small way in Chota Nagpore.

Dietetic value of fruit.

A celebrated French physician, Dr. Dupoury, divides fruit into five classes, each of which possesses a special hygienic value—the acid, the sweet, the astringent, the oily, and the mealy. To the first, including cherries, strawberries, raspberries, gooseberries, peaches, apples, lemons and oranges, he accords great merit. Cherries, however, he prohibits entirely to those affected with neuralgia of the stomach. Strawberries and raspberries he recommends warmly to those of bilious, plethoric and gouty temperament, and denies them to those on whom diabetes is present or suspected. Of the sweet fruits, he considers that plums are of special hygienic value, and even a preventative in gout and articular rheumatism. To the grape he accords the very first place.

New products in Africa.

Central African planters, in view of the fall in the market, are turning their attention to the old, but always new, subject of "New Products." We are glad to observe that their organ, the *Central African Times*, does not recommend tea being taken up, unless by large and well-equipped companies. Certain it is that tea would never pay in the dry coffee zone, though in the rainy forest districts it might possibly hold its own. Natal experience, as far as its London prices go, is certainly not encouraging. Tobacco is brought forward as a likely product, were expert curers imported for the treatment of the leaf. It is a mistake, though, to imagine that tobacco-growing would not pay unless good *cover* leaf can be produced. India is a standing example to the contrary. All the "cover" leaf, except that for the coarse cheap cheroots, is imported from Java and Sumatra.

Weeds! Weeds! Weeds!

A writer to a recent number of that interesting journal, *Indian Gardening*, draws very forcible attention to the danger of continuing the present policy of introducing noxious weeds into the country under the guise of ornamental plants, and then allowing them to disperse unchecked throughout the length and breadth of the land. In a recent visit to Ootacamund, which he rightly considers to be the centre of one of the most important planting districts of South India, he was struck with horror at the way certain pestiferous weeds were encouraged. He instances the white Ageratum, a

giant species of Polygonum, and the Oxalis, amongst others, as being signal examples of what pests certain plants can become.

He suggests that the introduction of weeds should be made penal, and that the Ootacamund Municipality should be empowered to keep down all existing noxious weeds.

Bananas from Queensland.

Recently there has been an experimental shipment landed here of bananas from Queensland, says the *London Produce World*. These bananas were brought over just to ascertain if the thing could be done, and it is very satisfactory to learn from Mr. George Randall, the Government Agricultural Lecturer for the Colony, that the bananas arrived in really splendid condition. They had been quite two months in the cool chamber, and this is regarded as a triumph in its way. A bunch of the fruit was exhibited on the Queensland Government Stand at the late Dairy Show. While on this topic of the cool chamber, it would appear from inquiries that in general American pears are subjected to a temperature of from 38 to 40 degrees F. Mr. Burney also states that his investigations have led him to the conclusion that all fruit can be transported by sea best when it is cooled prior to actual shipment.—*Ex.*

Regulation of sales.

At a Committee Meeting of the Indian Tea Association, held on the 29th ultimo, approval was given to the following notice, which has been issued to the trade by the Tea Brokers' Association of London, with reference to public auctions of Indian tea: "For the better regulation of sales, Indian tea importers have agreed to adopt the following rules: (1) That Indian tea sales be held on Mondays and Thursdays during eight months of the year, and on Mondays only from the first Monday in April until the last Monday in July. (2) That the quantity limit for Mondays be from 25,000 to 30,000 packages regulated so as not to require the sale to be continued later than 4 P.M. (3) Any surplus unsold from Monday's sale shall be offered on Wednesdays, no catalogue to be printed for Wednesday. (4) Small breaks appertaining to the tea offered to be sold at the close of each day's sale.

The New Currency Commission.

We note with great pleasure that the Ceylon Government will do its utmost to procure the nomination of the well-known Ceylon planter, Mr. Christie, on the new Currency Commission about to sit in London. Mr. Christie had the honour to represent the producers' interests on the 1893 Commission, held to report upon the closing of the mints, and then did yeoman's service. In the report of the debate on the subject in the House on the 29th ultimo, it is noted that the Committee will probably meet after the Easter vacation. Sir Henry Fowler is to be President, we are glad to note. Lord George Hamilton, as wired out before, held out no hopes of opening the mints, but he looked forward rather to the consummation of the policy that led to it, *i.e.*, the fixing of the rupee at a stable exchange of 1*s.* 4*d.*

Planting in Hawaii: a warning.

As most of our readers are aware, the annexation of the Sandwich Islands by the United Sates is only a question of time, and will probably be accomplished the next year or so. In many things, perhaps, the San wich Islands will be gainers by the transfer of Gover ment, but to the coffee and sugar planter the change m be disastrous. One of the chief causes of the prosperity the planting industry there is the cheap Asiatic contra labour to be had. But if the Islands should be annex the supply of contract labour would be immediately st ped. Planters would have to employ free labour, and grad ally Asiatic labour would become scarcer. This, as American supporter of annexation observes, will undou edly result in a considerable rise in the price of labour, *e if the intense agitation against Asiatic labour now prevail in the United States should not be at once transplanted to Islands.* Naturally, the prospect of having the only suita labour supply withdrawn from him does a great deal discount the otherwise brilliant inducements held out to would-be planter.

Artificial fertilization.

The following paragraph on fertilization of the date palm will read with interest. We take it from the London *Groc* which paper, however, betrays a curious lack of even Boa School botany :—

"Grocers are accustomed to handle dates, and usually know a d when they see one; but probably few of them are aware that there in dates such a thing as sex! 'I have even been told,' writes Harry Johnston, in a remarkably interesting report to the Forei Office on Tunis, 'that some male date palms are considered m vigorous than others, and have quite a reputation as sires.' If t report were not an official publication related to such grave affa as Blue Books, the reader might think this a sample of what Arten Ward calls a 'goak,' but it is, of course, sober fact. There are m and female date palms, and they require the aid of man in breedi Arabs climb the male date palm when it is in blossom, bring do the great spathe with its strongly scented white inflorescence (n unlike the flowers of a grass), climb the stem of the female tree, a shake the pollen over her blossoms, or else hang up the bloss alongside; then they climb another tree, and so on, until all the fem trees in the plantation have been fertilised. It is not necessary do more than hang up one small piece of male blossom, so that entire blossom of one male palm may serve for a good many fem trees. The blossom of the male date palm, therefore, is sold in market places divided into small pieces, so that you can buy a pen worth which may be sufficient for the two or three female palms your garden. Thus we find 'sex problems' even in trees. T ancients who thought trees felt and spoke cannot have been so wrong after all. It is curious how far down in the scale of Natu the great sex distinction is carried."

Theoretical prejudice.

It is extraordinary how har lived prejudice sometimes is, a how wilfully blind some men are to the side of the que tion opposite to that which they hold. Take, for instan the "legume" shade cult *question.* Out of every ten m one meets, perhaps one has taken the trouble to go in the question, and is therefore a thorough believer in it. the remainder three are doubtful, but wish to try it, wh the other five loudly condemn it from their impart standpoint of delightful ignorance. The idea, they e claim, of a plant or tree being able to enrich the lan It's against Nature. Look at corn, coffee and other crop do these enrich the soil, do they not all require expensi manuring? If they appeal to Nature, to Nature they sh certainly go. Being doubtless of a logical turn of min they consider that forests impoverish the soil, and that

plant in such land is the height of folly. No, they object, we refer to a crop which is removed from the soil, not to forests. Well, are shade trees "cropped"? If not, they must tend to enrich the soil, whether they use part of the manure given to the plants they protect, or not. Yes, is the rejoinder, that may be all very well, but how do you make out that leguminous trees of a particular sort are better than other trees, or even other leguminous trees? The only answer to that, with the space at our disposal, is to refer them to the back numbers of this paper, where the ins and outs of the matter have been set forth exhaustively for their benefit, had they taken the trouble to read and digest the articles.

Cheap wire bridges. The usual style of wire bridge known in this country is rather an expensive affair, but the ones now in favour in Central Africa seem to be far simpler, just as strong, if not stronger, and a great deal cheaper. The way in which they are erected is as follows:—"The wire is got out in coils, and does not cost so much as one might expect. A couple of stout posts are put in about eight feet apart on each side, if possible at a place where the banks are high and steep. Holes are bored in these posts at the requisite height and the wire rope passed through from bank to bank. The wire is then secured, or anchored, at one end first by means of short posts driven firmly into the ground in a slanting position, and then the other end is pulled as tight as possible by means of a gang of natives and hauling gear, and when sufficiently taut is also anchored. This part of the work over, it only remains to place a suitable wooden structure in the usual way resting on the two wires, and the bridge is made. Owing to the springiness of the wires, a hand rail is essential. As the breaking strain of the wires is, we believe, more than two tons, it will be seen that these bridges being meant for passenger traffic only are equal to any strain which may be put upon them. As these may be erected as high above the flood mark as the nature of the banks and the timber used will permit, there is no fear of their being swept away. Even should the water rise to the level of the bridge, there being no pillars or anything to offer a large resisting surface to the water, it would merely flow over it. While one of the Mlanje bridges was being erected, and before the posts had been firmly fixed in the ground, a heavy flood came down and the water rose to the level of the bridge."

PLANTING BOOKS.

Map of Ceylon Tea Estates Rs.9; colored Rs.10; Mounted in case Rs. 14. Map of Ceylon Plantations, Plain Rs.8. Inga Va, Rs.2-8. Areca Palm, As.12. Cocoanut Planter's Manual, Rs.4-10. Ceylon Manual of Chemical Analyses, Rs.3-10. Tobacco Cultivation, Rs.3-10. India Rubber (now in the Press). Coffee Planter's Manual (now in the Press). All about Spices, Rs.3-10. Coffee Tree and its Enemies, Rs.1-8. All about Grub, Rs.1-5. Brazil as a Coffee Country, Rs.1-8. Cardamoms, Re.1. Ceylon Coffee Soils and Manures, Rs.1-9. All about Aloe and Ramie Fibre, Re.1. Estate Buildings, Rs.4-4. Coffee and Chicory, Rs.1-13. Coffee Cultivation in Ceylon, As.5. Tea Cultivation and Manufacture, As.5. Tea Cultivation in Ceylon, As.6. Tea at high elevations in Ceylon, As.3. Manuring of Tea Estates, As.8. To Economise Labour Supply, As.12. Planting, Pruning and Preparation of Tea, As.12. Salt for Agriculture, As.8. Cocoa, Cocaine and its Salt, Rs.2. On the Importance of Lining, As.4.

Apply "Observer Office,"
Colombo.

A new Company: Messrs. Davidson and Co., Ltd. We learn from an exchange that Messrs. Davidson and Co., the Sirocco Engineering firm, is being formed into a limited liability Company. We have not heard as yet what the capital is to be, but all the ordinary and preference shares have already been taken up. The latest news from Belfast says that £60,000 worth of debenture shares at £100 each are still being offered to the public, and a telegram recently received by members of the firm's Eastern staff offered to reserve them some of these. To this offer the *employés* are asked to reply by wire, and we understand most of them have taken advantage of it. As far as we know, no shares have been taken up locally. It is estimated by those best able to judge that the capital is somewhere about £200,000. The firm, the head office of which is in Belfast, has branches in Colombo and Calcutta, and agencies in Java, while new ones have recently been started in the treaty ports of China. They are having enquiries for siroccos from all over China, and if the rivers are opened up to free trade, as the result of the present negociations between the Powers, it is probable a big business will be done there. In addition to this a very substantial business is being done in Russia. At the present moment the prospects of the firm are in a better position than they ever were, and we hear that upon the shares being offered by a broker in Belfast they were bought up very quickly without his leaving his office. The firm has hitherto been the sole property of Mr. S. C. Davidson, of Belfast. He was originally a tea planter in Cachar, India, and remained a planter for 14 years. Subsequently he was the proprietor of one large estate and a big shareholder in several tea companies there. The present sirocco business he started about twenty years ago in Belfast. We understand that he has himself taken the larger portion of both the ordinary and the debenture shares. For the debentures, 4½ per cent. is guaranteed, and it is understood that the ordinary shares as well as these are £100. When full particulars arrive in the East, it will be too late, of course, to think of buying shares.

Planting operations in East Africa. In 1891 an Indian planter, Mr. W. W. Fitzgerald, was engaged by the British East Africa Company to establish experimental plantations on the coast lands, and to examine the soil of the great unexplored tract that lies between Lamu and Port Durnford. Mr. Fitzgerald, says the *H. and C. Mail*, has just issued a book entitled "Travels in British East Africa, Zanzibar, and Pemba," in which there is an account of his labours. The Arabs had already established plantations in the neighbourhood of Melindi, but with the abolition of slavery, large tracts of land were falling out of cultivation for want of labour. There were, however, settlements of runaway slaves who were induced to engage as plantation hands by the novelty of a promise of wages, and Mr. Fitzgerald, with that rare combination of tact and kindliness which was conspicuous throughout his dealings with the natives, had a strong and loyal body of labourers at work upon the land within a few months of his arrival. While his crops were ripening, he scoured the country in search of other promising fields, with his eyes always fixed upon the main object of his expeditions. Mr. Fitzgerald takes a cheerful view of agricultural prospects. In the Sabaki valley he found a soil in which cotton, tobacco, sugar, fibre plants, and cocoanuts flourish with

equal luxuriance, which can be tilled with a light bullock-plough, and is never subject to the long droughts of the Indian plains. But the planter has to contend with his old enemy—the dearth of labour. Mr. Fitzgerald would apply the old panacea—the importation of Indian coolies, but he does not say how the Indian Government is to be induced to waive restrictions and safeguards that are greater than any Protectorate is in a position to give, or how, with a minimum wage of a shilling a day added to the cost of introduction, housing, and hospital, the East African planter is to compete with the Indian. With the exception of rubber, British East Africa does not produce anything that cannot be grown in tropical countries where the labour difficulties are less acute, and what has failed to pay in them is scarcely likely to prosper in a colony where the conditions are less favourable.

"Thrips" on coffee.

Some half dozen African exchanges having turned up last week. our notes are somewhat African-tinged in consequence, Has the "Thrips" pest ever been met with in India on coffee? The *Central African Times* has the following remarks on it. Shade, it will be observed, is recognised as a preventative of this as so many other diseases or pests :—

"We are indebted to Mr. Moir for his paper on this coffee pest which has done a great deal of harm this last season. It is not, however, a new coffee pest in the sense that this is the first year in which it has made its appearance here, as it has been noted for some years now, although probably only identified by those familiar with thrips at home. Thrips, we understand, are well-known to British gardeners and farmers, and there is one kind called *Thrips ceralium*, or corn thrips, which does a good deal of damage to wheat. It is described as a very minute, hardly distinguishable insect, which sucks the sap from wheat ears and causes the seed to shrivel. Gardeners are also familiar with it in greenhouses, and they find it is usually worst in dry weather. Mr. Mahon noted the thrips on the coffee estates he visited and, if we are not mistaken, was of opinion that they were due to the drought and would disappear with the rains. We ourselves noticed them about two and-a-half years ago (1895), when the rains at Zomba were somewhat late of coming, and one or two of the fields suffered badly. The puzzle then was to decide whether the damage was caused by the drought alone, or whether there was some pest. After carefully examining the plants, the opinion was formed that the little, almost indistinguishable insects were the cause, but the then head of the Scientific Department could not give any definite information on the matter, although specimens were submitted to him, and he was of opinion that the damage was caused entirely by drought. So far as we can gather, the thrips will not cause very much damage unless the rains are late, but if there is the least drought they multiply exceedingly, and then must do considerable harm. The question therefore is, would the drought without the thrips not do practically as much harm, and if it is granted that the thrips only do damage in times of drought, the remedy would appear to lie in combating the drought and not in trying to exterminate the thrips. It is possible that shade would be a remedy, and so far as our observations go they confirm the possibility, because in all cases in which we have seen fields attacked by thrips, plants in the shade have escaped with little or no damage. This pest also appears to be worst on low, hot elevations and, so far as we know, has not been troublesome on the high-lying plantations about Blantyre. We would, however, be glad to hear what our readers who have knowledge of this pest have to say about it, and Mr. Mahon will no doubt give us the benefit of his observations, especially as to the best means to combat it. Mr. Moir recommends spraying with a sprayer, and if that is to be done, then one of the knapsack sprayers would be the best. They can be got for about £2 each, and are very useful things to have on a plantation for all sorts of plant pests, and would even be of use, Mr. Moir thinks, in the case of *Hemeleia Vastatrix*."

The London Market.

Coffee.—Larger supplies have been brought forward than previously this season, says the *Produce Markets Review* of 26th ultimo and have contained a better assortment of home trade descriptions. In the early part of the week the demand was slow, but towards the end there has been an improvement and it looks as if the lower range of prices was at last attracting more attention, and leading to a better trade. One reason of the poorness of the demand thus far, from the home trade, is the lateness of the arrival of most of the best marks of both Costa Rica and East India. Generally these come amongst the first shipments, but this year the commoner ones have arrived first, and buyers, in consequence, are waiting to see how the better ones will turn out. Prices have been very irregular, but medium sorts are about 2*s.* cheaper, and really fine liquoring Costa Rica can now be bought between 70*s.* to 80*s.* per cwt. In the terminal market continued heavy receipts have led to a further fall, which has been partially checked towards the close, but quotations are mostly from 9*d.* to 1*s.* below last week.

London Coffee Returns.

—	Home Consumption.		Export.		Stock.	
	1898	1897	1898	1897	1898	1897
For the week ended March 19, 1898.	Tons. 286	Tons. 268	Tons. 350	Tons. 395	Tons. 11,089	Tons. 9,384
For the 11 weeks ended March 19, 1898.	3,079	2,961	4,202	2,964	—	—

Indian Teas.—There has been a better demand, but as the supplies have been ample, values show very little change. The higher grades attract most attention, and for the rather small selection offered competition was brisk and prices quite equal to, and in some cases higher than those realised in the preceding sales. Many of these teas are of autumnal flavour, not too pronounced, and as it is now evident, from recent reports, that such tea will be in very poor supply later on, buyers are securing these grades in excess of their immediate requirements. Good liquoring medium descriptions have also been readily taken at quite former rates, while some of the better parcels fetched

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COFFEE SHADE TREE.

Sun-dried Erythrina Lithosperma loppings, &c., contain per ton :—

61·50 lbs. Nitrogen.
57·38 „ Potash.
14·92 „ Lime.
13·68 „ Phosphoric Acid.

Seed cured under Messrs. Sutton and Sons' advice.

Orders should be booked early for the coming crop of seed from the parent trees of above analysis at Rs.6 per pound containing about 2,000 seeds. *Germination guaranteed.*

Only thornless variety extant, and is not procurable anywhere save from the

MANAGER, ARIENKOW ESTATE,
Shencottah.

vanced prices. Those who do not hold a good working ock of these grades would do well to take advantage of e gradually decreasing quantity now coming forward, d although they cannot be bought on such favourable rms as a month or so ago, they are still of comparatively ood value. For the common sorts prices are still irregu-r, and a fairly large quantity has been withdrawn from ublic sale, owing, it is reported, to the bids made having een much below the Calcutta cost, although representing e value prevailing in this market. So long as this is the se, holders, by withdrawing their teas, will only inten-fy the difficulty in selling later on, as the stock of this ass is gradually increasing, owing to the large proportion rought by the later shipments. At the public sales 34,855 ackages were offered, and the large quantity of 6,272 ithdrawn.

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oofs. Which is the best kind of roof for the tropics is a question which one iten hears discussed, and which a writer to the *Central frican Times* answers as follows :—

"Generally the discussion falls into which is the best nd most practical, for one usually finds unanimity on the oint that a tile roof is the coolest, French tiles, for example uch as are found in Quilimane and one or two samples of hich are to be met with in Chiromo. Owing to heavy eight charges, imported tiles have never been practical p-country, so they have usually to be left out of the count. he decision lies between iron and grass, and possibly ocally made tiles may compete for a place. For coolness othing beats a grass roof, but it is supposed not to be so ealthy as a tile or iron roof, and its danger in the case of re is obvious. Further, it requires renewal every three ears at least, as the grass gets rotten and the roof leaks. s advantages are its coolness and the cheapness of the rst cost. Iron, on the other hand, is easily put up, lasts long time, and if well put on is absolutely rain-tight. It so requires less pitch on the roof, and consequently there less surface to construct, and the smaller pitch allows of higher verandah. Against these advantages we have to et the fact that houses with iron roofs are usually much otter in hot weather and much colder in cold weather (and is in spite of good ventilation) and the proportionally igher first cost.

"Tiled roofs are not common in B. C. A., and the reason ssigned is the difficulty of making good tiles. This is a ifficulty which could be got over by introducing a tile-mak-ng machine. With the excellent clay which is everywhere bundant in the plateau lands there seems to be every pros-ect of such a machine turning out excellent tiles, and if the ost was such as to admit of them being sold much cheaper an iron, I believe they would replace most of the grass oofs at present in existence and would be generally adopted n all new buildings, for the advantages of tiles are many. Hitherto the attempts to make them have not, so far as I m aware, been conspicuous successes, unless those made by Mr. Brown at Cholo may be pronounced such. The tiles ade at the Blantyre Mission many years ago and used for oofing part of the school, I am told, were not a great success, nd the experiment was not continued. Given good tiles, omewhat after the style of the French tiles, their advan-ages would be coolness, rain-proof and, we will assume, cheapness. They also make a prettier roof than iron and would last fully as long. Their chief disadvantage is that they require a strong roof to support them, but it may be kept in mind that machine-made tiles are thinner and consequently lighter than hand-made ones.

"I have often thought that the flat roof, which is so distinctive of Eastern countries, would be very suitable for B. C. A., but the difficulties in the way appear to be almost insurmountable. Those who have been in the East, or who have travelled by the north route, must have noticed them frequently. At Zanzibar they are very common, and the delightful coolness of the houses there strikes the observer at once. In Zanzibar they are constructed of a sort of cement made from the coral which is so abundant there, and unless it were possible to make a cheap cement from the lime to be found in the country, I am afraid flat roofs will not become common in B. C. A."

In connection with iron roofs, a Glasgow firm has brought out a cement called "Tilestonite," which it states is suitable for roofs and outside walls of iron and wooden buildings in tropical climates. It is said to be heat-resisting, waterproof and fireproof. The mode of application seems to be to place it on the surface of the iron which it protects from corroding agencies. An iron roof covered with it appears quite flat like a slab of cement. It is said to have been adopted by the Indian Government, De Beers, &c., and the cost, including freight (ocean freight, we suppose, is meant), is put down at $3\frac{1}{2}d.$ per square foot, a ton being sufficient for 500 square feet. It is obvious, however, that to cover iron roofs here with it would make the cost of roofing almost prohibitive. So far as my observations go, I am inclined to think that the tile would be the best for this country.

Camphor distillation. The following letters regarding the product of the camphor tree in Ceylon will be read with interest. The letters appeared in the *Ceylon Observer* :—

GOVT. BOTANIC GARDENS,
HAKGALA, NUWARA ELIYA,
6th April, 1898.

DEAR SIR,—Referring to your question as to what is being done with camphor cultivation in Ceylon, I may add the following to what I wrote you on the 11th of February last. Wishing to satisfy myself that solid camphor existed in the leaves and twigs of even very young plants, I sent a small bundle of prunings, from plants planted out at the end of 1895, to Mr. S. A. Owen, of Messrs. W. Jordan & Co., of Lindula, who had very kindly undertaken to make the experiment for me. I am pleased to state that he has been very successful in extracting solid camphor from them; and as this is of general interest to planters, I shall be much obliged if you will be good enough to publish Mr. Owen's letter in an early issue of your paper.

The prunings from an average plant 28 months' old, as grown here, weigh from 10 to 12 lb.

I have a good many plants that want pruning, and if applied to before the end of this month, April, I shall be very glad to supply 10 or 20, or 35 lb. prunings to any person wishing to make the experiment for himself.—I am, dear Sir, yours faithfully,

W. NOCK,
Supt., G. B. Gardens, Hakgala.

The following is Mr. Owen's letter, Talawakele, March 30th, 1898.

DEAR MR. NOCK,—Thanks for the parcel of camphor prunings duly received. I have made several experiments. The following is the account of methods employed and results :—

(1) Took about 7 lb. of mixture of leaves, twigs and small branches, and gently simmered with about 2 gallons of water for three hours.

Result: a strong smell of camphor pervaded the bungalow, and a small quantity of camphor *oil* collected on the surface of the water, but no solid camphor appeared.

(2) Selected the thickest of the branches (averaging about an inch in diameter) and cut these into small pieces about 4 lb. in all. These chips were put into an empty kerosine tin, and this tin was placed inverted over another kerosine tin partly filled with water, and the joints between the two were luted around to make it steam-proof. The upper tin had a circular hole cut into the top part, and this hole was fitted with a cork and the cork was provided with a glass tube about 2 feet long communicating with a condenser. Heat was applied to the lower tin and soon after water began to boil, solid camphor commenced to form in the tube, and a little while after the latter became blocked. The steam now forced a passage through the various joints, and so the remaining camphor was carried into the air, thus spoiling this trial.

(3) A gallon iron kettle was packed with leaves and small twigs together with about two pints of water. The cover of the kett le was luted on and the spout fitted with a cork, while a long glass tube proceeded from the cork to a condenser. A short time after the steam commenced to flow, solid camphor began to form in the tube until the latter was at length blocked to a considerable distance; there was in consequence a loss of camphor as in previous experiments, but not so much, as the tube was cleared by the application of a spirit flame which caused the camphor to melt and run down. As the result was so promising, I determined to carry out the same experiment, with a definite quantity of material, as below.

(4) Packed the kettle with 1½ lb. of leaves and twigs as before with same amount of water and modified the arrangement, so that no blocking could occur. Applied heat gradually and kept it up for five hours. At the end of this time the sides of the condenser were coated with camphor, and small lumps were floating in the water which distilled over. All the camphor was collected carefully and dried between bibulous paper (to absorb most of the adhering oil). It then weighed 55 grains, which is equivalent to 12 ounces to the cwt. or 15 lb. to the ton.

I think the results very encouraging, as the leaves and young parts of the camphor tree contain but a very small proportion of camphor compared with the trunk-wood. Indeed, I believe that in Formosa and other camphor-producing countries, it is customary to altogether discard the branches and leaves and use the main wood only.

I should think that planters who have young camphor trees coming on here in Ceylon would find it well worth their while to utilise their prunings—especially if firewood is available and cheap, as this latter item would be practically the only expense, beyond the small amount of labour required and the initial expense of a still, which latter could be easily extemporised out of almost any kind of large iron vessel to which heat could be applied. As the camphor tree is a long while coming to maturity, considerations of this kind ought to be borne in mind.

I have pleasure in enclosing a small sample of the camphor obtained. As you will see, it has a rather dirty appearance due to unavoidable impurity and the sample smells of camphor oil, but these are easily got rid of in the process of refinement. I also enclose a small sample of the same camphor partly purified by sublimation.

You are, of course, very welcome to make what use you like of this account of these small experiments, whether by publication or otherwise. No doubt it would be encouraging to those who have gone to the expense of planting up camphor trees to know that there is camphor in our locally-grown trees. I have heard of one or two misgivings as to whether the soil and climate here would favour the information of camphor in the tree.

Yours faithfully,

(Signed) S. A. OWEN.

LETTERS TO THE EDITOR.

TO CORRESPONDENTS.

["A CEYLON WORM WHO'S TURNED."—Very good, but unauthenticated. "BUTTER."—Your letter forwarded to the gentleman concerned.—ED.]

HOW YOUNG PLANTS DIE.

SIR,—Thanks to "D" for kindly supplying his theory tow the solution of the mysterious death of young plants when early rains occur and after drought. I am afraid, however, "D" must be troubled to supply a more tenable theory. plants took up water as mechanically as a dry sponge abs water, then would "D's" theory be a good one to work on. "I theory is altogether too mechanical and contrary to the real cesses of life in plants that even strictly control the amoun moisture taken up by the roots at any time, however much amount may vary in different kinds of weather, at diffe periods of the year, and during different periods of developm and growth in the plants. Under no circumstances do the r of a plant take up more moisture than can be disposed of in s way or other without the enforcement of the cells.

Evaporation from the leaf-surface disposes of all sur moisture even in damp weather.

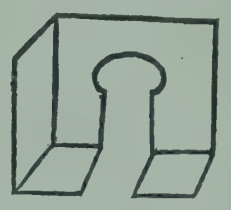
PLANTE

[Only half-authenticated.—ED.]

MR. CLARIDGE'S TRANSPLANTER.

SIR,—Thank you for your criticism on my patent transplan I said the same myself once, but found in actual use—

1*stly*,—That making the transplanters of shorter grade made no difference with the coolie, but it made a difficulty repair, besides being more expensive. In ordinary good nurse they lasted a long time without being damaged, and wit hammer and a bit of round wood were easily kept in or 2*ndly*,—I made a handle somewhat similar to the one suggest—coolies' hands are harder than ours, and they prefer using them without, only with the exception that with 18-i transplanters they were necessary. I annex a drawing of bl I use with and without groove, as suggested by you, 3½ inc



square by 1½ inches deep. But for Europe to avoid stooping, yours would be an advanta You will note it passes round stem of pl over transplanter without having to p it over the whole plant. 3*rdly*.—In weather the plant does not jam or *require* rammer, which I have tried without advantage. If there is a difficulty, it is best to take the ring right off; but it is better to take it off unless necessary, as it lessens the chance of losi them.

To avoid jamming.—This is the object of having the r ⅛ inch less in circumference than the transplanter. The ea that enters is slightly less than its circumference. The split-ri which acts as a spring, helps this and consolidates the ea round the plant with an even pressure similar and better th could be done with the hand.

My object has been simplicity, and to meet as much as possi the coolie intellect.

The Mercantile Mission Branch, Calicut, will quote prices 100 and 1,000, and blocks can also be had for them, but I wo suggest them being made on the estates, as it adds a great d to the expense.

Again thanking you,

GEO. W. CLARIDGE

HAREHATCH ESTATE, *viâ* BODINAIKANUR,
MADURA DISTRICT,
10*th April*, 1898.

I hope to lessen the price very much as soon as I can arra for large quantities to be manufactured at a time.

G. W. C

MILLIE & REDMOND, late P. THOMPSON & CO., *Ootacamund, Engineers and Contractors.*

GENERAL ARTICLES.

THE U. P. A. S. I. SECTION.

[*Under the control of the Secretary, U. P. A. S. I.*]

The currency question is well to the front, and corre-ondence regarding "Planters and Exchange" pours into e columns of the daily press. Meanwhile, be it noted at the Planters' Association of Ceylon and the U. P. A. S. I. e by no means idle with respect to this subject. The eylon Association made certain representations to the cal Government lately, and, as a consequence, the Governor s despatched a telegram to the Secretary of State for the olonies, urging the representation before the Currency ommittee of the producing interests, Native as well as uropean. In a letter from the Colonial Secretary, Ceylon, the Planters' Association, it is remarked that these terests "are unfortunately in apparent conflict with those the Indian Government." For the right protection or presentation of Ceylon interests, it has been suggested by e Governor, in the telegram referred to, that they should ave a voice in the enquiry through Mr. T. N. Christie, ther as a member or as a witness.

The interests of Ceylon must, as its Government observes, be the same as those of a large part of India," so it is well at the Planters' Association of Ceylon should have emorialized the Secretary of State for the Colonies, as it d a fortnight ago, regarding "the extreme gravity of the xisting conditions of exchange and currency, and the sastrous results of the artificial high rate." The memorial ludes to the present position as intolerable, and urges at Government should take such steps as shall be final, fter instituting a "fresh, impartial and exhaustive enquiry which the producers will not be sacrificed, but will be lly represented."

In like manner, the U. P. A. S. I. has expressed to the overnment of India a desire for a fair hearing, and it is oped that arrangements will be made whereby one witness more will be allowed to give evidence before the Com-ittee as to the position and needs of the planting com-unity in Southern India. If the Secretary of State for ndia permits this course to be taken, a selection will be ade from among the most influential planters who may appen to be in Europe at the time. The Secretary of the . P. A. S. I. would be glad to receive information as to e names and addresses of such gentlemen, so that as omplete a list as possible may be laid before the Chairman.

It is of the utmost importance that whatever is done ould be done promptly.

THE MADRAS SALES AND AGENCY COMPANY, (LD.)

Capital Rupees 24,000, with power to increase. Registered ffice, Nos. 17 and 18, Popham's Broadway, Madras.

UNDERTAKE **Auction Sales of landed property,** and of all descriptions of goods and merchandise.

Advances given where necessary.

Accounts settled punctually on due dates.

DISTRICT ASSOCIATIONS.

SHEVAROY.

PROCEEDINGS of the Quarterly General Meeting of the Shevaroy Planters' Association held in the Victoria Rooms, Yercaud, on Monday, the 4th April, 1898, at 2 P.M. PRESENT:—Messrs. W. H. Lechler, W. Rahm, T. B. Nicholson, C. G. Lechler (*Chairman*), S. M. Hight, J. C. Large, Rev. M. Andersen, and Mr. R. Gompertz (*Honorary Secretary*).

1. *Confirmed* Proceedings of the Committee held during the last quarter.

2. *Read* letter No. 163, dated 9th March, 1898, from the District Superintendent of Police saying that the Special Police would be retained till the 15th March, 1898.—*Recorded.*

3. *Read* and *Recorded* letter No. $\frac{293}{\text{Ac.Sub.}}$, dated 17th March, from the Collector asking to be furnished with the names of those who require small change and copper and the probable quantity they will each require monthly.

4. *Read* and *Recorded* letter from Mr. Ormerod, dated 24th March, saying that he has resumed charge of the office of Secretary, United Planters' Association, Southern India.

5. *Read* and *Recorded* letter No. 1104, dated 15th March, 1898, from the Collector of Salem, stating that pending revision of the sale of waste land rules (now in progress) no action will be taken on applications for waste land.

Resolved that as several Members of the Association say that they have already submitted applications for waste land and paid the deposit thereon, the Honorary Secretary request the Collector to move the Board of Revenue to reconsider their decision so far as to render it applicable only to future applications, and to have those already submitted disposed of under the old rules as quickly as possible.

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6. *Read* and *Recorded* letter No. $\frac{458}{L.\ F.}$, dated 23rd March, from the Collector, saying that he sees no necessity to reconsider his decision that a Planting Member of the Taluq Board was not required, as Yercaud was not now under the Taluq but the District Board.

7. *Read* copy of a letter from Mr. H. O. Newport, dated Brisbane, 6th March, 1898, circulated by the Secretary, U. P. A. S. I., reporting his movements in quest of Lady-birds.

8. *Read* letter No. $\frac{R.\ W.\ 7,\ No.\ 6}{37611}$, dated 26th March, 1898, from the Postmaster-General, saying that he considered it impracticable, under the circumstances, to throw the Mail bags out of the train at Kadiampatti, but that if the planters were willing to make up the difference in cost, paying for six months in advance, he would be prepared to have the Mails conveyed by runners from Mallapuram instead of from Kadiampatti.

Resolved that the Honorary Secretary be requested to address the Agent and Manager of the Madras Railway, and to ask him to arrange either to stop the Mail train at Kadiampatti, which would be a great boon to the planters and others, or if that be not possible, to inquire whether he could not put up an apparatus similar to that used in England and other countries whereby the trains would automatically receive and discharge the Mail bags; as if he could do that, it would probably satisfy the Postmaster-General.

The following papers were laid on the table:—

Proceedings of a General Meeting of the Lower Pulneys' Association, dated 12th February, 1898.

Proceedings of a General Meeting of the Wynaad Planters' Association, dated 2nd March, 1898.

Copies of *Planting Opinion*, dated 19th and 26th March, 1898.

Robert Gompertz,
Hony. Secretary.

C. G. Lechler,
Chairman.

CENTRAL TRAVANCORE.

A General Meeting of this Association was held at the Penshurst Bungalow, at 10 A.M., on Saturday, the 9th April.

Present:—Messrs. H. Arnold, F. Bissett, H. J. Blandford, K. A. Burne, R. W. Cole, R. W. Courtenay, L. W. Crawhall, R. H. Goldie, C. N. Grimshaw, R. S. Imray (by proxy), H. S. Holder, L. G. Knight, W. H. Leaky, B. Laurie, P. Montgomery, D. MacArth N. Macgowan, W. H. M. Macgrath, H. S. Place, W. W. Sloco A. E. Veale, Hon. V. B. Wilbraham, F. M. Parker (*Chairman*), a H. W. Baker (*Honorary Secretary*).

Honorary Members:—Messrs. J. S. Sealy and A. W. L. Verned

Visitors:—Messrs. H. D. Deane and C. H. Ewart.

Read notice calling meeting.

The Chairman, in opening the meeting, expressed his pleasu at presiding over such a large attendance and his gratification the interest shown by members in the affairs of the Association.

Minutes of last meeting were taken as read.

Read Madras Government Proceedings, in reply to the late Hon rary Secretary's letter forwarded by the President, Madura Lo Fund Board, regarding alternative schemes for repair of, or re-alig ment of, *Kumili-Peermaad ghât road* and the Pulliar-Suttu brid Resolved that the Secretary write to the President, Local Fu Board, requesting information as to when the repairs would probab be completed, as this Association understands that the flow of wa through the Pulliar-Suttu bridge has now ceased owing to t closing of the supply sluices on the Periar Irrigation Works.

Coast Shipments.—Read letter from Messrs. Aspinwall & Co. Chairman, dated February 26th, 1898, and Chairman's reply to sa with reference to the shipment of produce on the coast. After discussion in Committee, it was finally resolved that the Chairman requested to communicate with Messrs. Aspinwall & Co., stati that the Association, as a body, is not unanimous in the matter, a that consequently shippers would make their own arrangements the present.

Extension of Telegraph Wire.—*Proposed* by Mr. Holder, a *seconded* by Mr. Laurie, that the Honorary Secretary communica with the Director-General of Telegraphs, Calcutta, requesting that t telegraph wires be connected between the Peermaad and Kum stations, a distance of 22 miles by road, and probably 15 or so acr country. This line would not only be a very economical one construct (as no stations would be required), but it would affor direct through line from the West Coast to Madras and the East divisions of the Presidency.—*Carried.*

Stamps on Telegraph Receipts.—*Proposed* by Mr. Holder, a *seconded* by Mr. Laurie, that an enquiry be addressed to t Director-General of Telegraphs as to whether telegraphic stam could not be attached to *all* telegraph receipts (both inland a foreign) at *all* "combined" Postal and Telegraph stations (inste

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w.

The Wynaad and the Planting Industry of Southern India, by Francis Ford. Re. 1.

The Planting Directory of South India. Re. 1-8.

Tea Planting from Seed to Cup in Tamil, with English Translation. Re. 1.

Sketch History of the Planting History of Wynaad, by the late Adolphus Arthur Wright. Re. 1-8.

Report of Observations of Injurious Insects and Common Crop Pests during the year 1883, with Methods of Prevention and Remedy, by Miss Eleanor A. Ormerod, F.R.Met.Soc., &c. Re. 1-8.

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Correspondence and matter for publication to be sent Editor, this paper, Coonoor.

of postal stamps pasted on the telegraph form only, as at present), owing to the very great convenience to the public of knowing what amount had been paid into the office, especially in out-stations, where residents live at considerable distances from the office.—*Carried.*

Registration of Public Carriers.—*Proposed* by Mr. Goldie, and *seconded* by Mr. Parker, that His Highness' Government be respectfully asked if some method of registration of owners of carts, plying for hire, cannot be adopted in Travancore, thereby bringing them under some sort of control.—*Carried.*

Read complaint from Mr. R. W. Cole against Moses, Apothecary, for alleged neglect of duty.

Referred to decision arrived at in Committee.

Papers laid on table :—

Proceedings, Shevaroy		Planters' Association,		March 7,	1898.
Do.	Kanan Devan	do.	do.	Feb. 25,	do.
Do.	Lower Pulneys	do.	do.	Feb. 12,	do.
Do.	Wynaad	do.	do.	Jan. 5,	do.
Do.	do.	do.	do.	Feb. 2,	do.
Do.	do.	do.	do.	March 3,	do.

With a vote of thanks to the Chairman, the meeting then closed.

H. W. Baker,
Hony. Secy., C. T. P. A.

A Committee Meeting of this Association was held at the Penshurst Bungalow, at 9 A.M., on Saturday, April 9th, 1898.

Present :—Messrs. F. M. Parker (*Chairman*), R. H. Goldie, B. Laurie, A. E. Veale (*Honorary Secretary, Medical Fund*), H. W. Baker (*Honorary Secretary, C. T. P. A.*)

Read correspondence regarding Glenmary Apothecary and letter from him explaining the delay. Letter recorded. Resolved that a Committee, composed of the Chairman and Secretary, interview the chief medical officer with respect to complaints, and to decide on the necessary steps for the more punctual despatch of work. *Proposed* by Mr. Baker, and *seconded* by Mr. Parker, that with the intention of bringing the Medical Fund Leave rules into accord with the Government Medical Grant-in-aid rules, that the former be altered in so far that the one month's annual leave, sanctioned to the Medical Fund officers, can only be availed of by them in periods of 14 days at a time, or less, for each absence from their stations.—*Carried.*

Read letter from Mr. R. W. Cole *in re* proposed additional accommodation in Doctor's house for medical stores. Resolved that medical stores be kept under lock and key at local dispensaries.

Grant-in-Aid.—Proposed that the Honorary Secretary, Medical Fund, be requested to communicate with the Dewan with reference to the payments now due.—*Carried.*

With a vote of thanks to the Chairman, the meeting closed.

H. W. Baker,
Hony. Secy., C. T. P. A.

MARKET REPORT.

COFFEE.

Messrs. R. J. Rouse & Co.'s Weekly Coffee Report (April 1, 1898) says :—Heavy supplies have again been catalogued and values generally are rather easier; fine qualities, however, were well maintained.

Nearly 2,500 bags East India were offered and mostly sold. Neilgherry met a poor demand and was difficult to dispose of at 2/– to 3/– decline, whilst a fair proportion had to be bought in. Fine Home Trade marks, however, attracted keen competition and realised extreme rates.

The large quantity of Central American brought forward sold slowly at declining prices for all descriptions except the colory grades, which show no change.

Futures have recovered 2/– during the week, chiefly in consequence of dearer cost and freight offers and reduced Brazilian stocks.

Messrs. Wm. Jas. and Hy. Thompson's Report of the Colonial Markets for the Week ending March 30th, 1898, says :—Bank rate 3%. Bombay Exchange closes at 1s $3\frac{2}{32}$d. Brazil Exchange $6\frac{1}{16}$d. Rupee paper $3\frac{1}{2}$% $62\frac{1}{8}$. Silver $25\frac{11}{16}$d per oz.

Further extensive supplies have been brought forward since our last report; these have met with a poor demand for all kinds, except finest, and have only been partly sold at a further reduction of 1s to 2s per cwt. Fine East India continues to sell with competition, but the commoner kinds, such as grayish and foxy Wynaad, are almost unsaleable, and have been mostly withdrawn. The bulk of the Central American supplies has been of poor quality, and to effect sales, considerably lower prices would have to be accepted. At the close the tone is somewhat better, and there seems to be more inclination to do business at the low values now ruling. Brazil markets are steady.

Daily receipts averaged 9,300 bags in Rio and 13,100 bags in Santos.

Futures have been firmer, and close 6d to 9d per cwt. dearer, viz. :—Good average Santos in Havre, May delivery, fcs. 34.75, in Hamburg pf. $28\frac{3}{4}$, and No. 7 low ordinary Rio in New York $5.30.

To-day's London official quotations are :—

	April	May	July	Sept.	Dec., '98.	Mar., '99.
Santos ...	27/9	28/3	28/6	29/3	29/9	30/3

We quote :—

Ceylon, mid. to good mid.	95/@107/	Costa Rica, mid. to fine...	76/@106/
Do. small to low mid.	80/ ,, 93/	Do. ord. to low middling.	50/ ,, 74/
East India, mid. to good mid...	76/ ,, 92/	Jamaica, good to fine ord.	38/ ,, 52/
Do. small to low mid.	58/ ,, 75/	Do. greenish to fine colory...	70/ ,, 125/
Guatemala, mid. to fine...	70/ ,, 95/	African ...	27/ ,, 29/
Do. good ord. to low mid...	54/ ,, 68/	Columbian, ordinary ...	35/ ,, 40/
Salvador, good ord. foxy greenish...	40/ ,, 42/	Do. good ord. to low mid...	42/ ,, 67/
		Do. mid. to fine...	72/ ,, 95/

Receipts in Brazil to 30th March compare as follows with previous years :—

	1897-98. Bags.	1896-97. Bags.	1895-96. Bags.
Rio	3,629,000	2,902,000	1,965,000
Santos	5,507,000	4,486,000	2,745,000
	9,136,000	7,388,000	4,710,000

In Sale—

37 cases 4,073 bags East India, viz. :—331 bags Mysore 60s to 117s 6d; 324 bags Naidoobatum 40s to 111s; 344 bags Shevaroy partly sold, 55s to 99s; 37 cases 1,282 bags Neilgherry chiefly sold, 46s to 98s; 613 bags Wynaad partly sold, 50s to 92s 6d; 225 bags Nelliampathy partly sold, 52s to 93s; 954 bags Coorg 57s 6d to 107s 6d; 6,538 bags Costa Rica, part London cleaned, chiefly sold, 36s to 106s; 1,314 bags Guatemala, part London cleaned, chiefly sold, 25s to 79s 6d; 3,432 bags Salvador, part London cleaned, partly sold, 39s 6d to 56s; 257 bags Nicaragua, part London cleaned, partly sold, 59s to 68s 6d; 197 bags Vera Paz bought in; 1,514 bags Columbian, part London cleaned, chiefly sold, 33s to 88s 6d; 81 bags Venezuelan, part London cleaned, small part sold, 42s; 227 packages Mocha bought in; 87 packages Abyssinian Mocha bought in; 74 bags Liberian Selangor bought in; 7 bags African Liberian 17s; 56 bags Bolivian, London cleaned, 57s to 63s; 307 barrels Jamaica, part London cleaned, small part sold, 22s to 57s; 31 bags Guayaquil, damaged, 38s; 127 bags Ecuador bought in; 588 bags Mexican, chiefly sold, 58s to 77s 6d.

Landed last week ...1,566 *tons.*	*Deliveries* ...948 *tons.*	*Stock* ...11,707 *tons.*
Do. last year ...1,492 ,,	,, ...671 ,,	,, ...10,205 ,,

TEA.

Messrs. Gow, Wilson and Stanton's Indian, Ceylon, and Java Tea Report, dated April 1st, 1898, says :—

QUANTITY BROUGHT TO AUCTION IN LONDON

From 1st June to Date.

	Indian.	Ceylon.	Java.
1897-1898...	1,429,024 packages.	1,002,220 packages.	37,008 packages.
1896-1897...	1,445,413 ,,	941,594 ,,	37,334 ,,

28,503 *pkgs.* Indian
26,615 ,, Ceylon
1,554 ,, Java

Total 56,672 packages were offered in public auction this week.

The present depressed state of the market is disappointing to all concerned in Tea production. Home Consumption progressed steadily for several years, but duty payments commenced to fall off towards the close of 1897, and since continued almost without interruption, viz. :—

	Oct.	Nov.	Dec.	Jan.	Feb.	Total.
1897-8	...19,572,410	20,423,310	17,881,167	19,421,688	17,771,818	95,070,493
1896-7	...21,456,202	20,672,420	19,151,891	19,343,318	18,087,721	98,711,552
1885-6	...20,785,806	20,470,451	16,974,647	20,505,320	17,454,473	96,190,697

It is difficult to assign a positive cause, but various influences may have contributed towards it. The late Engineers' strike involved the loss of enormous sums of money to the wage-earning classes and curtailed their expenditure, as well as the purchasing power of tradesmen affording them credit. This may be partially answerable for the heavy bonded stocks, held mainly by wholesale firms and importers. There are also indications of increased use of cocoa which may possibly have interfered with Tea consumption.

It is gratifying to note that Tea clearances during the month of March have shown larger duty payments; it seems therefore probable that whatever influences have been at work may prove only of a temporary character and that some improvement in prices may therefore be anticipated.

Indian. There is very little change to record in the market, the bidding showing a somewhat languid tendency. 153 closing invoices have been printed, against 225 last season. The following averages may be mentioned:—"Chardwar T Co. Chardwar," 1/0¼; and E. M. P. T. Co.'s gardens "Borjulie" and "Sonajulie," 11½d.

Week's av. of Tea sold on Garden Account, 1898, 19,653 pkgs., av. 7·50d. 1897, 14,748 pkgs., av. 7¾d.

	1898.		1897.		1st June to date 1897-8.		1st June to date 1896-7.	
	Pkgs.	Price.	Pkgs.	Price.	Pkgs.	Price.	Pkgs.	Price.
Assam ...	9,703	8·65	4,061	11	502,774	9·89	499,429	10·22
Cachar & Sylhet...	4,938	5·96	9,364	6½	276,879	6·91	269,758	7·36
Chittagong ...	—	—	—	—	5,686	7·15	3,298	7·48
Chota Nagpore ...	—	—	—	—	1,666	5·03	1,819	5·11
Darjeeling ...	121	10·50	—	—	66,506	11·08	57,915	1/·46
Dooars ...	3,061	6·68	1,252	6¾	120,302	7·46	129,026	7·45
Kangra, &c. ...	293	6·78	—	—	8,268	7·14	5,685	7·12
Neilgherry ...	218	5·82	—	—	6,182	6·13	3,864	7·02
Terai	—	—	—	—	19,976	7·19	13,488	7·21
Travancore ...	1,319	7·50	71	5½	29,559	6·33	26,677	7

Total sold on Garden Account 1st June to date 1898, 1,046,326 pkg av. 8·74d. 1897, 1,010,957 pkgs., av. 9·09d.

Comparative prices of Indian Tea in London:—

		1898.	1897.	1896.	189
Dust.	(Fair ordinary, dark liquor) ...	3½d	4d	4¾d	4½
Fannings.	(Red to brown, strong rough liquor) ...	3¾d	4d	4d	5¼
Broken Tea.	(Brownish to blackish, strong liquor) ...	6d	6¾d	6d	7½
Pek. Soug.	(Blackish greyish, useful liquor).	6¼d	7d	6½d	8
Pekoe.	(Greyish to blackish, some tip, useful liquor) ...	7d	8¼d	7¾d	8½
Pek. Soug.	(Blackish greyish, inferior liquor).	4¾d	5¼d	5¼d	6½
Pekoe.	(Blackish greyish, some tip, inferior liquor) ...	5¼d	6d	5¾d	7

Ceylon. Better competition was noticeable in the auction, pric showing a tendency to harden while here and there a few parcels sold slightly better rates. The Official estimate of the Ceylon crop for 1898 lbs. 122,171,400, being about six million pounds above the actual outtu of 1897. The following averages are worthy of note:—"Holbrook 11¼d.; "C. T. P. Co. Waverley," "Kintyre Estates Co. Eltofts" a "St. Clair," 11d. Week's average 7·15d., against 7¾d. last year.

Ceylon Tea sold on Garden Account 1st January to date 189 294,636 pkgs., av. 7·64d. 1897, 267,594 pkgs., av. 8·10d.

Comparative prices of Ceylon Tea in London:—

		1898.	1897.	1896.	189
Pekoe Soug.	(Ordinary leaf; fair liquor) ...	5¾d	6d	6d	7
Pekoe	(Ordinary leaf, little twist; fair liquor) ...	6½d	7d	7¼d	8
Pekoe Soug.	(Rather bold leaf; indifferent liquor) ...	4½d	4¾d	5d	6
Pekoe	(Somewhat bold leaf; indifferent liquor) ...	5d	5½d	5½d	

Java. The sales passed with fair competition for all grades, with a occasional slight improvement in prices. 117 packages "Perbawattee brought an average of 10d. per lb.

Bank Rate 3 per cent. Exchange on London three months sight: Calcutta 1/3 3/32. Colombo 1/3 3/32.

PUBLIC SALE OF SOUTH INDIAN TEA.

(Average for all India 7·50*d*.) *April 1st.*

Garden.	Total.	Average.	Broken Org. Pek. or Flowery Pekoe.		Pekoe and Unassorted.		Broken Pekoe.		Pekoe Souchong.		Broken and Souchong.		Fannings, Dust and Various.	
	Quantity	Price.	Quantity	Price.	Quantity	Price.	Quantity	Price.	Quantity	Price.	Quantity	Price.	Quantity	Price
Neilgherry ...	**218 p**	**5·82**												
GTE ...	33	4	8	5	21	3¾	...	...	...	...	...	...	4	3¾
New Hope ...	185 p	6¼	50½c	7½	55	6½	...	...	80	5½	...	...	...	...
South Wynad ...	**222 p**	**7**												
Erramaculla ...	146 p	7	21½c	†7¼	33½c	8	46½c	8	27	6½	12	5¾	7½c	†5¾
Perindotty ...	76 p	7	25½c	8¾	21	7½	10½c	6½	20	5½	...	...	...	...
Travancore ...	**1319 p**	**5·70**												
Bonaccord ...	192 p	5½	...	...	82 p	5¼	43 p	6½	34 p	4¾	...	...	33 p	3 5½
Braemore ...	219 p	5½	...	...	66	5¼	118½c	6½	...	...	14	5	21½c	3 5½
Cheroot Mallay ...	64½c	5	...	...	64½c	5	...	...	...	...	...	...	...	...
Great Valley ...	79 p	5¼	...	...	45½c	5	30½c	6¼	...	...	2½c	4½	2	2½
Invercauld ...	129 p	5½	...	...	58	5½	50 p	6 6¼	16	4¾5	...	...	5½c	2¾
Merchiston ...	72 p	5½	23½c	6¼6½	30	5¼6	13½c	6 6½	...	...	...	...	6½c	2¾
Poonmudi ...	192 p	5¾	...	...	84	†5½	70½c	6¾	19	5¼	...	...	19½c	3 5¼
Riviera ...	30	5	...	....	26	4¾	4	6¼	...	...	...	...	...	...
Sth Trav TC Vent.	236 p	6	64	7 7¾	154	5 6	...	...	...	...	...	...	18	3 3½
Wallardie ...	106	6½	...	...	20	5½	43	8¾	32	5¼	6	4½	5	4

Teas marked thus † are last of the Seasons.

PLANTING OPINION.

A WEEKLY JOURNAL

WRITTEN BY PLANTERS FOR PLANTERS.

OL. III.] COONOOR, SATURDAY, APRIL 30, 1898. [No. 17.

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SUBSCRIPTION.—Advance Rates: Yearly, Fifteen Rupees; Half-yearly, ht Rupees; Quarterly, Five Rupees, and Monthly, Two Rupees, including tage. Single Copies, Eight Annas.

ADVERTISEMENTS.—From the 1st October, 1897, the charge for advertisements will be: 4 as. per line for the first, 3 as. for the second, 2 as. for the third and succeeding insertions. Five-line advertisements n Subscribers will be inserted for three issues for one rupee; non-Subbers will be charged two rupees.

DOMESTIC OCCURRENCE.—The fee for inserting a domestic urrence will be *One Rupee* for each insertion, payable in advance.

N.B.—Remittances should be sent to the Manager, "Planting Opinion," lanade Row, Madras.

IMPORTANT NOTICE.

The Business Offices of this paper having now been moved to Madras, all remittances should be made payle to the Manager of *Planting Opinion*, 11 and 12, cond Line Beach, Madras, who will also attend to all vertisements, &c.

Letters to the Editor should be addressed to Coonoor, usual.

SEASON REPORTS.

NOTICE.

TO OUR SEASON REPORTERS.

Please post your next reports to reach Madras on Friday, the 6th May, 1898.

Season Reports should be sent to the Printers, Messrs. ADDISON & Co., direct, and not to *Planting Opinion* Office.

SEASON REPORTS.

Lower Pulneys.

DINDIGUL, 26*th April.—Weather.*—Good rains all over the district since 17th April, average about 5 inches. *Crops.*—Magnificent blossoms out everywhere. Crop promises to be large for 1898-99. *General Health.*—Fairly good. *Labour.*—Plentiful.

S. E. Wynaad.

27*th April.—Weather.*—The cry of the spikes made the skies to pour down the rains. We have had a few showers on the 23rd, 24th and 25th, but did very little good. Since yesterday the clouds bank up in the evening, but the rain does not fall. During the day it is very hot. The spikes on some places all burnt and gone and in some places reviving. *Health.*—The diseases stated in my last report are still prevalent.

Coorg.

POLLI BETTA, 26*th April.—Weather.*—The rain reported last week was followed by more on 21st and following dates up to Monday, 25th, inclusive. In many cases the requisite quantity was made up by falls of from 10 cents to 40 cents. Out east, however, there was heavy rain on Friday last, the 22nd, amounting from 1 to $2\frac{1}{2}$ inches. All this came down in about two hours' time. *Crops.*—In every case where rain was 15 cents and over on Monday, 17th, the blossom was started, and some of it was open on Sunday and Monday last, but the great bulk will be out on Friday next or so. The rain seems to have been quite seasonable. There is a most magnificent show of blossom on nearly all places, and prospects are extremely good, conditions being favourable for a good set. *Public Health.*—Good.

Nilgiris.

COONOOR, 27*th April.*—Since last Wednesday I have had 1·03 inches of rain

quite enough for the present with what has come before. Coffee blossom in many places is turning out a great success, but how estates have had a certain proportion of young crops burnt off of the previous drought. Generally speaking, everyone seems happy. Tea is already responding to the rain, and may catch up arrears yet. General health better since the rain has fallen. I hope I won't hurt anyone's feelings, but I do wish weather-moonists in your reports would attempt to explain *why* they refer to the moon and its alleged connection with the weather. Because it affects the tides? But the moon affects the tides at certain and very definite periods. Is this the case with the weather? It's the dull season now; no work and lots of time. Suppose one of your weather correspondents starts some interesting subject to discuss, strictly, of course, confined to our select little band. Difficulty, of course, is—subject.

Kullakamby, 27*th April.*—*Weather.*—Good rain has fallen and brought out the spike. A good deal of blossom is already out, and the cloudy weather still continues and more rain may be expected. *General Health.*—Fever prevalent somewhat, but general health good.

VEGETABLE PESTS AND BLIGHTS.

In Dr. George Watt's new work on "The Pests and Blights of the Tea Plant,"* planters—whether of tea, coffee or any other product—will find plenty to interest and instruct. The book is of course primarily devoted to the pests and blights of the tea plant, and, in fact, is a report of a short investigation in the Assam and Kangra tea-districts undertaken for the Indian Government at the instance of the Indian Tea Association. The investigations were cut short, we believe, by Government, as it considered that the Indian Tea Industry could very well afford to pay its own scientific officers. Still, short as was the duration of his field labours, Dr. Watt's book bears ample evidence—467 pages of it—of the great interest he has taken in the work, and lays down clearly enough the lines on which future investigations should take place.

We shall not here touch on the varied forms of blights and other pests that afflict tea, but shall rather consider the broader lines of the treatment of blights applicable to plantations generally, be the staple what it may. It is a point of particular interest to observe that, despite repeated and keen search, Dr. Watt was unable to discover any of the more important blights on any of the wild tea growing in the Naga Hills. This observation, confirming as it does the generally accepted opinion that crop diseases are due very largely to the artificial conditions under which they are grown, strikes the keynote of Dr. Watt's convictions regarding the proper treatment of pests. It is possible, he admits, to cure fungoid or other diseases by fungicides and other poisons, but the aim of the up-to-date planter should be to strike at the rost of the evil, *i.e.*, to remove the cause of the disease itself by improved cultivation, manuring and pruning. We have a certain pleasure in reminding our readers that this standpoint is identically the one which we have always taken, one in fact which we share with many of the most progressive planters of the day.

To arrive, however, at a correct understanding of the precise conditions of environment that favour the development and attacks of plant pests, an intimate knowledge is r quired of the life history of the insects or fungi which a under treatment. The dense ignorance that still preva on this subject of, for instance, the red spider on tea something astonishing. When the immense annual pec niary loss suffered from its ravages is taken into accou it is difficult to believe that no one can yet know whe the insect hibernates. Yet it is likely that if this we known, and a half dozen simple experiments extending ov a few years would solve the point, the effectual treatme of the pest would be quite within the limits of planti operations. It is the same with the mosquito (*Helopelti* No one knows where it goes to, when its work for the ye is over, nor where it comes from to begin its operations the next season.

As stated before, the cultivation of most crops is a companied by a very great difference in the influences which the particular plant is subjected to in its wild sta Nowhere, perhaps, is this more strikingly the case than wi the tea bush. The entire nature of the plant has be changed under cultivation. Fruiting is rigorously su pressed by all known means of treatment, and the two three scanty crops of young leaves borne when wild in t jungles is forced up to thirty or more crops in the year. fact, it is scarcely too much to say that, under the prese system of cultivation, success consists in the production and development of a diseased state. It is no wonder th that old gardens, unless very carefully and regula "supplied," exhibit undoubted signs of serious deterior ion in every way. Coffee exhibits the same results in even more striking way.

To state that, under the present system, success mea exhaustion, does not imply that equally great success, *i.* large and good yields, cannot be obtained by a different a more intelligent treatment without its now inevita consequence of exhaustion. Dr. Watt states that, w exception of one or two of the blights, and more especia in cases where these blights had only recently appeared any serious extent, he did not find a garden in Ass badly blighted in which the bushes did not show that th were in an unhealthy state, altogether apart from peculiar malady with which they were at that particu time beset.

By way of impressing upon tea-planters the great r which they may run in neglecting to extirpate apparen insignificant blights, the well-known ruin of the Cey coffee industry by coffee disease is cited. That this dange by no means imaginary Dr. Watt shows by instancing va ous forms of tea-blight that are spreading almost unnotic in the tea districts, being gradual in their action and significant in their appearance. It is mournfully interesti to notice that a very large percentage of the insect pests the Ceylon coffee plant have been found doing considera damage to tea in India.

Returning to the subject of combating disease by i proved methods of planting, it is urged that far too lit care is observed in obtaining good seed even from the called seed gardens growing in spots remote from danger hybridisation with inferior stock. The cultivation is usua merely nominal, while the treatment of the trees themsel is wanting in several important respects. From this st of things to that advocated by Dr. Watt, *i.e.*, the establi ment of seed gardens to procure disease-proof plants

* "Pests and Blights of the Tea Plants", by George Watt, M.B., C.M., F.L.S., C.I.E., &c. &c. Published at the Office of the Superintendent of Government Printing, India, Calcutta. Price Rs.2-8-0.

perior cropping power, is a very long step indeed. Yet, any one with even a nodding acquaintance with the results modern agricultural research in this direction, it is obvious t such efforts would be almost certainly bound to be wned with success. Entailing, however, as this work does, g and patient investigation by trained men, we think this uld in all fairness be taken up by Government. The ditions of the planting industry are such that it would almost impossible to conduct the needful experiments in uccessful manner by private enterprise. Short of Governnt aid, combined effort in the shape of suitably endowing requisite research stations is the only alternative. This ans money of course. And just now low prices and high change have rendered this commodity fearfully scarce. This alone does not profess to be a complete review on Watt's work, but such as it is, we hope interest will e been aroused in the work which we repeat will be nd valuable by all planters, whether engaged in the tivation of tea or of any other product.

NOTES.

ing freights. This year's big grain crops in India are adding yet another straw, and a y substantial one, to the huge load of the planter. Besides large crops, the coal-strike at home will probably ect competition and cause freights to go higher still. eights are rising steadily. In Calcutta they have advan- to 22*s.* 6*d.* Colombo rates are 25*s.* already. In August 96 they fell to 7*s.* 6*d.*; the mean rate is about 20*s.* A ference of £1 sterling per ton makes as much as a thing per pound difference in the cost of getting tea on London market.

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erest on advances. Among the signs of the hard times now ruling in the planting rld may be cited the late abortive attempt in Mysore to uce cooly wages, and the present movement in Ceylon to rge interest on all advances made to coolies or maistries er than those advances for recruiting labour. In ylon an evil custom has grown up of issuing advances to ble the maistry or coolies to pay their bazaar debts, en amounting to very large sums. It is on these advan- that interest is to be chargeable. It would seem far er to combine against giving these advances at all. In dia we are luckily free from this sort of extortion.

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e American Fund. In issuing the now annual call for subscriptions to provide funds the important American market, the Indian Tea Asso- tion draws attention to the great success already achieved America from the working of the campaign. America sorbed over 11¾ million pounds of British-grown tea last ar (India and Ceylon contributing almost equal shares) ainst a little over 3 millions in 1892. Last year the bscriptions amounted to Rs.1,05,000, against Rs.1,03,000 1896. The rate of subscription is the same as before, , 4 annas per acre of tea and half an anna per maund 2 lb.) of manufactured tea.

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nitrogenous manure eeded? This is the question which Mr. Baur, of the Ceylon Manure Works, is asking the Island planters with ference to the subject dwelt in our issue of last week in the article headed "Nitrefying Earth as a Manure." Mr. Baur holds that in view of what he alleges to be the exceptionally favourable conditions for nitrefaction that rule in Ceylon, planters of that ilk might well neglect the matter of nitrogenous manures. On the other hand, Mr. Baur advises that far greater attention should be paid to supplying local crops with mineral manures in a soluble form. Raw bones are all very well, but not half soluble enough, and interest is lost on the necessary expenditure of capital.

Indian tea exports. In the current monthly tabular statement of tea exports given by the Indian Tea Association, we note that the past season's crop has totalled over 148¼ million pounds against under 147¾ M. for 1896-97—a very slight increase. The shipments to Great Britain were 133¾ M., proportionately the same as the previous season. Australasia shows about ½ M. as increase, while the American shipments show a decline of ⅖ M. These figures of course only represent direct shipments. Ceylon has exported 28 1/10 M. from the beginning of the year to the 5th instant compared with 27 1/10 M. last year. March shipments of Indian tea to America are gratifying, being almost 77,000 lb. against only 9½ thousand lb. last year.

Shade and tea. Tea planters in Ceylon are bothering themselves muchly over the subject of the alleged deterioration of their product. The latest suggestion advanced in explanation thereof is the effect of the shade cast by the numerous trees planted by the sides of roads and, in belts, in the tea itself. The *Times of Ceylon* considers this suggestion very strange, and cannot understand how the quality of the leaf produced from the tea in the vicinity of shade trees could be affected. In India at least there is now held to be no possible doubt on the bad effect of shade *quâ* shade on the quality of the leaf, which when manufactured gives a thin, pale liquor with neither strength nor aroma. Whether the proportion of shaded tea in Ceylon is such as to affect the whole yield is of course a very different matter.

Nyassaland coffee. Mr. Trubridge, a Ceylon planter, has given his impressions on the capabilities of Nyassaland as a coffee district to the local organ, the *Central African Times*. He went out from London specially to inspect the country. The climate he found to be better than its reputation (which from most accounts is very vile). The weediness of the coffee fields attracted his unfavourable attention of course, and in a dry country like Nyassaland, we thoroughly agree with the advisability of the Ceylon clean-weeding system. For leaf disease Mr. Trubridge kept a very sharp look-out, but was unable to detect it anywhere in the country. *The* great and universal mistake was of course pointed out again, *i.e.*, the folly of allowing young trees to overbear. Mr. Trubridge thought that 2 cwt. an acre average crop, with the cheap land and cheap labour, would give a very good profit. Lucky Nyassaland!

The beginnings of plants. In one of his recent lectures, Professor Ray Lankester showed that the primal difference between plants and animals was based upon what each was able to eat. The organisms which can only eat substances of

lower chemical elaborateness than starches, sugars, and albumens are said to be holozoic; and all animals belong to this class. Those who can eat oxygen and carbon and nitrogen, and have the power (with the help of chlorophyll and sunlight) of separating oxygen, are called holophytic. But between these two comes the anomalous class—the organisms which have a mouth and eat animal's food, and yet have chlorophyll corpuscles to enable them to get sustenance as the plants get it. These, we say, are saprophytic, and it is among such organisms that we have to search for the point where the animal world and the vegetable kingdom start. There is a green plant called the Englena which has a mouth, and yet has the chlorophyll corpuscles which would class it as a plant; and there are among the tiny organisms of the "flagellata," or whip swimmers, several we should class as animals, and yet which have the green corpuscles in their minute structures. This is, therefore, one reason for believing that it was among the "flagellata" that the vegetable kingdom first found its origin. Broadly speaking, said the professor, one might say that if in the beginning a group of "flagellata" joined themselves end to end so as to form a thread, they turned into a plant; whereas if they followed more complex courses and joined together in more elaborate structures and households, they became animals.

A tea-broker on tea-making.

Mr. G. Stehn, the Manager of the Tea Department of the great Mincing Lane firm, Messrs. Wilson Smithett & Co., has recently paid a visit to the Ceylon tea estates, and is continuing his tour to visit the South Indian gardens. His impression so far of Ceylon manufacture is that planters are not in proper touch with the London market. For instance, the London demand is a for a strong well (not over) fermented tea, whereas most of the Island teas are made on the lines of a few years ago, *i.e.*, very lightly fermented. This is partly due to the Colombo buyers still preferring that quality, mostly for export to America, Australia or the continent. Such teas, however, will not do for London, but the Assam style should be followed. From this censure Mr. Stehn excepts say the teas made in July and August, as their pungency is acceptable. But underfermented teas made in the droughty months are washy and without special point. In the course of an interview published in the *Times of Ceylon* he said that "another thing that struck him was that tea on the whole was made on rather hard and fast lines without due regard to the exigencies of climate. "I mean to say," he said, "that the different factories should not turn out tea on the same lines, but should treat it differently in consideration of climate, elevation, temperature, and other things. Then again, I think sorting in grades requires more attention. There is too much similarity amongst the grades as a rule. Take broken pekoes, for instance. They are not, as a rule, a distinct enough grade. We want a greater proportion of it, true broken pekoe. What do I call true broken pekoe? It is really the fine part of the bulk sorted out, and it must be a comparatively small proportion of it. In several places I noticed they fired the teas too briskly. Brisk firing is all very well for strong low-grown teas, but with these light, delicate, up-country teas it will not do. Quick firing seems to destroy the flavour and all point of the tea. If teas grown at a high elevation were fired slower, I think th flavour would be more prominent."

London Market.

Coffee.—Although the Brazilia exchange has further fallen to 6 (*P. M. Review*, 2nd April), the value of good average Santo offered on cost and freight terms, has advanced about 1*s.* 6 per cwt. This has led to a larger business in the termin market, where values have steadily risen, closing about 1*s.* 6 to 1*s.* 9*d.* above the recent lowest prices. At the auctio there has been a much better demand, and the depressi which characterised the market for the last fortnight more has entirely gone, and, with keener competition, pric are generally dearer. The sales have consisted principal of Costa Rica and other Central American sorts, and, importers are still for the most part anxious to sell, near the whole were easily disposed of at rather irregular rate but in many cases from 1*s.* to 2*s.* above the low quotations last week. Only a small quantity of East India has be offered and sold at about previous rates. The Dutch Tradi Company have advertised their next sale for Tuesday, wh 20,950 bags and 60 cases will be offered, against 19,059 ba and 40 cases at the corresponding sale last year.

London Coffee Returns.

—	Home Consumption.		Export.		Stock.	
	1898	1897	1898	1897	1898	1897
For the week ended March 26, 1898.	Tons. 340	Tons. 319	Tons. 608	Tons. 352	Tons. 11,707	Tons 10,20
For the 12 weeks ended March 26, 1898.	3,419	3,280	4,810	3,316	—	—

Indian Teas.—The bulk of the tea brought forward h been of inferior quality, and owners have found it diffic to dispose of their supplies, even at the present low quotatio The market is, no doubt, overburdened with common d scriptions, and the lower prices current during the past fe weeks have failed to stimulate the demand to any mater extent, from which it may be inferred that the public a prepared to pay a reasonable price for good tea. This is matter that should not be overlooked by those interested the next season's production, as by avoiding, as far practicable, the excessive supplies of the common sor both producer and the trade would benefit. Anoth important point is the quality of the material in which t

COFFEE SHADE TREE.

Sun-dried Erythrina Lithosperma loppings, &c., contain p ton:—

61·50 lbs. Nitrogen.
57·38 „ Potash.
14·92 „ Lime.
13·68 „ Phosphoric Acid.

Seed cured under Messrs. Sutton and Sons' advice.

Orders should be booked early for the coming crop of seed fr the parent trees of above analysis at Rs.6 per pound containi about 2,000 seeds. *Germination guaranteed.*

Only thornless variety extant, and is not procurable anywhere s from the

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Shencottah

tea is packed. Many parcels during the past season have been packed in unsuitable wood, which when it comes into contact with the tea imparts to it, what is termed by the trade, a "cheesy flavour." This should not be difficult to overcome, as the wood giving the contents of the package this peculiar smell is easily detected, and should under all circumstances be strictly avoided. In each case when the tea is in the condition described, it should be printed with all faults, which would not only save time, but would prevent a good deal of friction between buyer and seller. At the public sales 26,892 packages were brought forward and 3,090 withdrawn. For all desirable grades prices were steady with an upward tendency for the finer tea, while the common kinds sold irregularly and occasionally easier.

GENERAL ARTICLES.

THE U.P.A.S.I. SECTION.

(Under the Control of the Secretary, U.P.A.S.I.)

The following is Mr. H. O. Newport's second narrative report, dated Brisbane, 2nd April, 1898, in respect to the Lady-bird scheme :—

Dear Sir,

I have received no letter from you, as I expected to do, by either of the last two mails.

I received a letter from the Hon. Sec., L.P.P.A., however, with several enclosures, and replied to it on the 20th ultimo.

I regret that I was not able to write to you by the same mail, but in writing now, at the end of the month, I can send you, at the same time, accounts of money expended as requested by you.

On the 20th ultimo I was very much out of sorts, and found myself unable to write more than the one letter to the Hon. Sec., L.P.P.A., copy of which, I presume, will have been sent to you. During the subsequent week I had to call in a doctor, who told me that I had the dengue fever, which is very prevalent about here just now, and which appears to be a form of influenza. Hence my silence last mail.

The Hon. Sec., L.P.P.A., in his letter to me, dated 20th February, 1898, informed me that (1) no consignments of Lady-birds need be despatched before my departure from here. (2) That future consignments will be decided upon after my report on those I bring, and (3) that my head-quarters on return are to be the Lower Pulneys.

He also added that the amount to the credit of the fund was on no account to be exceeded, which I think was unnecessary, as you had already impressed this point upon me before my departure.

Mr. Fred. Gerrard enclosed a copy of your letter to him of the 5th February, 1898. This was in reply to a letter you had received from him, dated 1st February, 1898, but copy of which Mr. F. Gerrard does not enclose.

I note that you say I must have misunderstood instruction with regard to the Chairman's suggestion of correspondence with the Hon. Sec., N.P.A. and L.P.P.A. I very much regret that I should have done so and not have *waited for replies* before starting. I do not still see that any benefit would have accrued to the scheme by any further delay however; everything else being settled, these were comparatively minor points, and I can act on the replies, having received them out here, just as satisfactorily as if I had waited to receive them before starting. Moreover, any further delay would have, as it happens, and as I suspected, endangered the success of the scheme.

I admit the instructions, but submit that I fully carried out the spirit of the Chairman's instructions, though I may have not kept strictly to the letter. I trust Mr. Fred. Gerrard will see it in this light.

I note what you say *re* making arrangements for subsequent despatches (should they be needed) through the Department of Agriculture, and I will, I think, be able to do this.

Mr. F. Gerrard also enclosed a copy of a letter from the Hon. Sec., N.P.A., also in reply to one of his, copy of which he does not enclose. I am, therefore, left to conjecture what Mr. Gerrard said.

Mr. Windle's remarks with regard to subsequent work in connection with the experiment seem very just.

I personally understood that I was to go back to the estate I have been in charge of, and was certainly prepared to continue experiments in this line while there. I did not understand that the Nilgiris Plantations Company had ever raised any objections to this. I left them on *leave* (without pay) for as long as may be necessary, up to six months, and understood that they only objected (and very naturally) to my drawing salary from them while I was *out of India* or away from the estate where I could continue my ordinary work, and a substitute had to be provided.

The Hon. Sec., L.P.P.A., seems to have taken things into his own hands, and obtained permission from the Managing Director of the N. P. Coy., Coonoor, for me to use the Pillavaly Estate bungalow. Unless some correspondence has taken place between the Managing Director, N.P. Coy., and the Hon. Sec., L.P.P.A., that I know nothing of, I fail to see why this was necessary. Still less so since it has been decided that the Pillavaly Estate is to be my head-quarters on return, what I am to understand from this I cannot tell.

With regard to the work, I beg to report that everything is going on satisfactorily. I have made several excursions to outlying districts, Government giving me free passes over the Railways, and have identified and named several varieties that I propose to bring over to India, besides the *Cryptolæmus Montrougerii*. The variety *Rhigolius Ventralis* I have found, but it is somewhat rare, and although I will bring all I can get, I do not expect to find many. There are several varieties of *Orcus*, particularly *Orcus Australia*, that Mr. Tryon advises my bringing over, and judging by the good work they are doing here on various scale pests, notably *Ceroplaste rubra*, I am of opinion that they would be of great use to us in India both for the soft shelled Green Scale *Licanium Viride* and the black bug *Lecanium coffee*.

I have all the apparatus necessary except the ice chest, which I am making arrangements for now. This will cost some £5 or so I expect, but it is necessary, as I have to keep the insects some time while I bring in the consignments from different parts and collect them. Moreover, it will be necessary on the voyage, as I hear it is somewhat risky using the ship's refrigerators.

To ensure as far as possible every success, constant attention will be necessary on the voyage back and a uniform temperature of 40° F. or so.

I cannot yet tell when I shall be able to leave. My departure depends upon the collections I shall be able to make this month as well as upon the state of the weather here. I hope, however, to have finished by the end of this month.

Finance.—I beg to report that up to the end of March I have only had to draw £25 from the Circular Note for £160 that you gave me. I have paid all expenses out here, and ended March with some £4 in hand.

Unless I have unexpected and heavy expenditure, I hope to bring back in cash at least half of the sum to my credit here in the Circular Note I carry.

The expenditure, roughly, has been as follows :—

Receipts.	Rs.	A.	P.
From Mr. Ronaldson	1,500	0	0
Total ...	1,500	0	0

Expenditure.	Rs.	A.	P.
Drawn against salary ...	390	0	0
Return passage to Sydney ...	620	0	0
Expenses Madras to Colombo.	145	10	6
„ in Colombo, 2 days.	20	8	0
Sundries	14	3	6
*Balance	309	10	0
Total ...	1,500	0	0

*Exchange @ 15/8, £20.

FOR SALE.—Hand Camera (¼ plate) by Robinson, Dublin, in first-class condition with 12 slides for plates—also some 2½ dozen plates (more or less), 6 developing dishes, 3 optimus printing frames, and large assortment of photographic chemicals. Price on estate Rs.75. No offers. Apply—M. W. Litton, Shaniwarsanté, N. Coorg.

	£	s.	d.
In hand	...20	0	0
Drawn	...25	0	0
Total	...45	0	0

	£	s.	d.
Expenses on *Oruba*	... 1	10	0
„ at Sydney	... 5	17	9
„ Sydney to Brisbane..	6	2	6
Drawn against salary	... 5	0	0
Hotel and Rooms	...16	7	3
Apparatus ...	... 1	14	9
Sundries ...	... 0	12	9
Trav. ex. to from Grovely, Gatton, Newfarm Milton, Enoggera, Musgrave Park, etc. ...	... 3	15	11
(Tams. cabs, etc., Railage free.)			
Balance cash in hand 1-4-98...	3	19	1
Total	...45	0	0

I have the honor to be,
Sir,
Your most obedient Servant,
(Signed) Howard Newport.

GREEN MANURING.

A paper on the subject of Green Manuring, devoted mainly to an account of the 40 years' experimental work carried on by Dr. Schultz on his estate at Lupitz Altmark, Saxony, appears in the recently published seventh volume of Mons. Grandeau's "Etudes Agronomiques." The investigations of Dr. Schultz are particularly worthy of attention at the present time, when so much interest is being concentrated on the work of Hallriegel, Wilfarth, Nobbe and others, on the *assimilation of free nitrogen* by leguminous plants,—a subject already well discussed in this journal. The work of Dr. Schultz established facts, the explanation of which was reserved for the recent study of the investigators already referred to. The Lupitz estate with its development, described by Mons. Grandeau, offers an instructive example of the economic transformation of a *poor* into a *fertile* soil. When inherited by Dr. Schultz in 1855, it was for the greater part mere moor and heath land. The soil is a light alluvial one, consisting chiefly of fine quartz or sand, interspersed with grains of felspar and mica, containing but little clay, and naturally very poor in the elements of plant food. It contained only 0·18 to 0·26 per cent. of lime, the subsoil being as sandy as the surface soil. The district has an average rainfall of about 27 inches per annum, and but for this fairly abundant rainfall its cultivation would present still greater natural difficulties since the soil is but little retentive of moisture.

In 1855 the soil could scarcely be said to be "cultivated." It was only by the aid of extraneously produced dung that it was possible to obtain any crop at all, and such produce as the land yielded scarcely paid its expenses. The proprietor, however, happened to notice that while other crops were grown with such difficulty, yet yellow, white and blue *lupines* were an exception to the rule and yielded a moderately good crop as long as they got a fair quantity of rain. Why this difference between lupines and other farm crops? And could it be turned to account to produce other crops fitted for the nourishment of man, and how?

These questions presented themselves to the mind of Dr. Schultz, who, for 40 years, has given himself up to striving to answer them. By long and patient trials he has worked out what throughout Germany has become famous as the "Lupitz System" of cultivation and manuring, which has resulted in transforming the nearly *sterile* sand of 1855 into a fertile estate yielding profitable crops.

The basis of this transformation has been the culture of leguminous green crops, notably lupines, with the aid of mineral manures—lime, potash and phosphates *without the use of nitrogen;* the mineral manures being usually applied not to the leguminous crops themselves, but to the non-leguminous with which they were alternated. To decide what are the best catch crops or green crops to be used for this purpose of green manuring and to trace out the causes of their good effects has been the life work of this celebrated agriculturist.

In 1865 Dr. Schultz established a lupine "meadow," which has lasted to the present time, manured only with mineral manures. The soil was in 1880 analysed by Professor Maercker, side by side with soil kept under rye and potatoes for a like period of 15 years, manured with dung, and also side by side with soil uncultivated and unmanured during the same period used for pasturing sheep. The results were as follows :—

	15 years' permanent Lupine Culture.	15 years' alternate Rye and Potatoes.	15 years' unmanured (Sheep pasture).
	Nitrogen per cent. of Soil.	Nitrogen per cent. of Soil.	Nitrogen per cent. of Soil.
First depth of 8 in.	0·087	0·034	0·027
Second „ 16 „	0·025	0·011	0·021
	lb. per acre.	lb. per acre.	lb. per acre.
First depth of 8 in.	2,098	820	650
Second „ 16 „	1,368	602	1,150
Total nitrogen in the 24 inches ...	3,466	1,422	1,800

It will from this be seen that the nitrogen found, after 15 years' cultivation, in the soil and subsoil of the lupine "meadow" exceeded the mean of the other two plots by 1,855 lb. per acre. The quantity of nitrogen removed by the 15 years' crops of lupines is, however, estimated at 1,221 lb. per acre, so that despite the removal of more than half a ton of nitrogen in crops, nearly two-thirds *of a ton of nitrogen had accumulated in the soil* (as we now know from atmospheric sources) during the 15 years between 1865 and 1880.

A further analysis of the soil of the lupine "meadow" was made in 1891, eleven years afterwards, by Professor Holdefleiss, who found 0·177 per cent. or nearly *double* that which Professor Maercker had found in 1880, showing an *enormously increased accumulation of soil nitrogen.*

PLANTING BOOKS.

Map of Ceylon Tea Estates Rs.9; colored Rs.10; Mounted in case Rs. 14.

Map of Ceylon Plantations, Plain Rs.8. Inga Va, Rs.2-8. Areca Palm, As.12. Cocoanut Planter's Manual, Rs.4-10. Ceylon Manual of Chemical Analyses, Rs.3-10. Tobacco Cultivation, Rs.3-10. India Rubber (now in the Press). Coffee Planter's Manual (now in the Press). All about Spices, Rs.3-10. Coffee Tree and its Enemies, Rs.1-8. All about Grub, Rs.1-5. Brazil as a Coffee Country, Rs.1-8. Cardamoms, Re.1. Ceylon Coffee Soils and Manures, Rs.1-9. All about Aloe and Ramie Fibre, Re.1. Estate Buildings, Rs.4-4. Coffee and Chicory, Rs.1-13. Coffee Cultivation in Ceylon, As.5. Tea Cultivation and Manufacture, As.5. Tea Cultivation in Ceylon, As.6. Tea at high elevations in Ceylon, As.3. Manuring of Tea Estates, As.8. To Economise Labour Supply, As.12. Planting, Pruning and Preparation of Tea, As.12. Salt for Agriculture, As.8. Cocoa, Cocaine and its Salt, Rs.2. On the Importance of Lining, As.4.

Apply "Observer Office,"
Colombo.

Continuous lupine cultivation for 25 years on a soil riginally poor and sandy aided only by *potash* and *phos-hates* not only, therefore, gave satisfactory crops, but—espite the exportation of nitrogen by yearly "mowing"—roduced *progressive nourishment of the soil itself*, thus con-lusively showing that, in the words of Dr. Schultz, "the ource from which plants can obtain their nitrogen is more bundant than was formerly believed. It is the part of man o utilise it more and more for the wants of agriculture, and he art of the farmer should be to endeavour better and etter to take advantage of it." To quote Mons. Grandeau. The *beautiful* researches of Hellriegel and Wilforth have evealed to us the true cause of this accumulation of itrogen by leguminosæ. It is for cultivators of the soil o turn it to profit more and more day by day, guided by he results acquired in the 40 years' experimental study of he eminent investigator at Lupitz."

The cultivation of a lupine "meadow" is, however, *not* eld up as an example of *practical* agriculture. The meadow" is regarded as an experimental or demonstra-ion plot. For practical purposes the system of Dr. Schultz s, as already said, based upon the *alternate culture of catch crops*," or green manuring. A catch crop improves he soil, not merely by the fixation and accumulation of tmospheric nitrogen in the soil, but by reason of the rganic and mineral matters which the crop leaves in the oil, and still further *mechanically* by the depth of penetra-ion of its roots. Catch crops, therefore, should be chosen vhich possess in the highest degree these three properties, itrogen accumulation, mineral accumulation in the roots, nd depth of root penetration. Nevertheless, mustard, rape, uckwheat, stubble turnips and other non-leguminous crops, ften used for catch cropping or green manuring, have a lefinite value in soils and situations suited to them.

Dr. Schultz experimented with some 30 leguminous crops, vith a view to deciding which was the most suitable for oil improvement. He tried 16 varieties of lupines, various inds of vetches and vetchlings, of peas and of beans. *He elects*, as being on the whole the *most suitable, lupines* yellow, blue or white), the hairy *vetch, kidney beans*, white *eas, Lathyrus sylvestris*, and *Lathyrus clymenum*.

The following table shows the total dry matter and itrogen contained per acre in a number of leguminous rops, taking into consideration both the plants above round and the roots, side by side being added a statement f the quantity of *commercial* nitrate of soda corresponding o the nitrogen indicated. It will be seen that if an acre f any of these crops be ploughed into the soil at the time f flowering—that being the time at which the determinations vere made—the *quantity of nitrogen contained in the green nanure* thus applied would be equal, on an average, to nearly *alf a ton of nitrate of soda.*

The effect would naturally not be the same as that of so arge a dressing of nitrate of soda, for it is of course to be remembered that green manure decomposes and yields its itrogen much more gradually than nitrate of soda, and is nore comparable to dung. It would be a better comparison, erhaps, to state that if ordinary dung be taken to contain ·5 to 0·8 per cent. of nitrogen, then the average leguminous reen crop ploughed in, as aforesaid, would contain as much itrogen as about 9 to 15 tons of dung per acre.

—	Total Dry Substaces.	Nitrogen.	Equivalent of Nitrogen expressed as Nitrate of Soda.
	lb. per acre.	lb. per acre.	lb. per acre.
Lathyrus clymenum ...	5,113	157	1,000
Peas	7,183	200	1,274
Mixture of Leguminosæ.	6,027	165	1,051
White Lupines	6,282	164	1,045
Blue „	7,053	172	1,095
Yellow „	5,077	129	821

Such alternate husbandry as constitutes the principle of the cultivation which has developed the Lupitz estate is carried out in various ways. The catch crop can either be sown immediately after the principal crop is harvested and the land ploughed up, or it may be sown with the principal, as has been long practised generally in the case of clover sown with or on a corn crop.

(*To be continued.*)

INFLUENCE OF BEES ON CROPS.

THERE is nothing more interesting in the life history of the vegetable kingdom than the methods and agencies of its reproduction. Fascinating as it is, it is too often the stumbling block of amateurs whose love of plant life carries them to look into the deeply-hidden mysteries of this absorbing subject. The sexuality known to exist in blossoms; their matrimonial instincts; their marriage ceremonies; their domestic ties; their methods of raising and perpetuating their families and co-relations; the officiating and conjugating priests, and the agreement between the contracting parties, are all more or less like fairy tales than actual facts.

These matrimonial ceremonies, how they marry and are given in marriage, is the portion of the subject I here wish to deal with. The arrangements of the sexual reproductive organs and their various functions have already been dealt with.

In the higher members of the plant world there is a very great difference between pollen cell and the ovule (little egg) that are joined to form new individuals. The former of these is smaller than the latter, and more active; it is the male; and the latter, of course, is larger than the former; is composed of richer matter, and is passive —it is the female. From the nature of these ovules, these passive eggs, they cannot become seed or plants until they are united with and fertilized by an active or live pollen again. The essential organs in blossoms known as anthers contain these active cells, the cells of life. The pistillate organs contain the passive cells, the cells of matter. The pistil in apples, pears, or other fruit blossoms is the bride, the stamens seen in blooms of like trees are bridegrooms, and the honey bee is the licensed officiating priest who is to perform the connubial ceremony. Let us for a while watch these officials of Nature carry out some of their highly important duties. Bearing in mind, whilst so watching, the table of kindred and affinity wherein it is stated a man may not marry his grandmother or a woman her grandfather, etc., and note how these insects, without a written law, are never parties to close or blood relations inter-marrying; neither does their natural instinct permit them to per-form unnatural alliances. They will not attempt to marry an orange to an apple, or a pea with a pumpkin, or pear with a cherry, and so on; neither does Nature permit them to marry the male of a blossom with a female of the same bloom. Such alliances in the higher plants are repugnant to all concerned. Nature's motto in the vegetable kingdom, as well as in the animals, is, especially when aided by the intelligent hand of man, "upward and onward." If the pollen of a blossom were transmitted to the carpels of the same, the result would be degradation, and the loss of some of the choicest varieties of fruit and vegetables we now raise from seed.

The ovary is composed of one or more carpels. The ovary of an apple bloom has five such carpels. In the mature fruit these are termed the core.

In the early spring mornings, when the bees issue forth to go in quest of stores, the first thing they gather is pollen. It is the first

product the blossom yields, even before it secretes its nectar (honey). In their eagerness to be first on the foraging ground, they leave home at about sunrise. If they have selected an orange to gather their stores from, they will keep upon orange or some other member of the citrus tribe during the whole of that peregrination. Tumbling about in the cup of the flower amongst the anthers, they gather up in their fur numberless grains of these life cells, pollen grains. Head, thorax, abdomen are all more or less dusted with it. Whilst gathering it, and whilst on the wing from flower to flower, and tree to tree, they are busily engaged in packing it in the pollen baskets that are situated in the upper part of the hinder legs. As the day warms, the blossoms unfurl; the central whorls develop, and the stigma becomes receptive. The bee, eager in her duties to supply her home with abundance of food, both for the young brood and winter storage, commences her search for honey. In the early morning there is little or no nectar secreted; but as the warmth increases, so the flow of honey advances. Anxious to fill her honey-sac whilst gathering the pollen, she enters the blossoms where she will find the greatest abundance of her favourite winter storage, and thrusts her tongue down into the nectries of the blooms. To get at the honey more readily she lies on the top of the essential organs, and brushes to and fro on the stigma. Whilst thus engaged, the fur on the various parts of her body retain pollen grain; those on her breast come in contact with the stigmas of the flowers. Having commenced working on an orange for pollen she will not go to an apple or aught else for her honey. Citrus fruits supplied the pollen, citrus fruits must provide the honey. Why? Because Nature has endowed the bee with that intelligence—there is no other word so applicable—to know if she were to take the pollen of an orange to the stigma of an apple, as far as fructification was concerned, her labour would be useless. Pollen from one species of the vegetable kingdom can seldom be used successfully, even by artificial means, to fertilize that of another species. When it is successful, the result is a hybrid, the descendants of which cannot be perpetuated by seed, but only by cuttings, grafting, etc. Bearing in mind the characteristics of the stigma, its adhesiveness, and its hairy hooklets, the bee's breast coming in contact with the latter, it acts as a comb or brush, and aids in detaching the pollen grains from the fur of the bee. These grains fall on the adhesive stigma, and are retained by its viscidity. When this contact takes place—sometimes at once, at other times it may be delayed for hours—the cell of life starts into activity by throwing out a pollen tube, which at once goes in search of the cell of matter contained in the passive ovule. To accomplish this, the pollen tube makes its way down the style which connects the stigma to the ovary. The silky threads that protrude from a cob of corn, delicate as they are, are not too fine or too long for these active tubes to penetrate. The style of the orange, etc., is also as easily pierced. The ovule, or young seed in the ovary, contains the embryo of the future plant. The pollen tube having found its way to the ovule, the union of the respective cells takes place. The ovule thus receiving the "germ of life," the infantile development of the future orange or other tree, as the case may be, commences.

When the contact of the two cells has been accomplished, the calyx withers; the corolla, with the dead remains of the stamens adhering thereto, falls to the ground; and the pistil in most cases is absorbed in the fruit.

These developments will be better understood by reference to a peach or other stone-fruit. When the ovule has thus been fertilized, the seed, or as it is generally termed the kernel, is the first to develop, followed by that of the hard shell surrounding it, the stone; and at the same time the flesh increases and matures with the gradual expansion of the outer skin. We then say it is ripe, *i.e.*, its flesh has become useful as food to man, and the seed capable of reproducing its species.

Now, it must be obvious to the most casual reader of these articles that the bee has played the imperative part in the production of these fruits. Nothing else would have accomplished it so effectively and with such beneficial results as the little busy bee. Other insects live on honey and pollen, but no other insect is endowed with the instincts of social bees. They work so systematically in cross pollenization. They make no mistakes. They will carry pollen from variety to variety, and sometimes from species to species, but not from order to order. After a foraging excursion they are never seen to return to the hive with different varieties of pollen on th bodies. In examining a cell of pollen in the hive, each stratum seen to belong to distinct species of the vegetable kingdom (r varieties). With other insects that only feed on pollen grains, th consume it on the anther whereon they alight. It is for immedi consumption for each one's present wants. Where other inse visit one blossom bees will visit a hundred. Watch a butterfly o flower and compare its actions with the rapid movements of a b and judge for yourself which is the better worker of the two. Y must bear in mind that in early spring flowers, and especial fruit blossoms, mature rapidly. Of the essential organs the anthe in most cases come to perfection first, and are the first to d The pollen is distributed in a very few hours, and its vitality in mo instances is short-lived. The pistil with stigma and its carpels a very delicate organisms, therefore liable to all kinds of acciden When we remember the chief characteristics of the stigma, it will seen that a dust storm is capable of clogging it, and thus preve fructification. A dust storm in early spring has a deal to answ for in the failure of fruit crops, so has heavy rain, wind, or anythi else that may bruise those very delicate portions of the flow From this will be seen the imperative necessity for some rapidl moving agent to convey the perishable pollen to the highly sensiti stigma. The numerical strength of these agents must be in pr portion to the quantity of work they have to do, or the areas und fruit culture they are expected to visit. If bee-keepers and the bees were banished from Australia there would be fruit, but i what quantities? I have referred elsewhere to the mischief done b butterflies and some other insects, but no such mischief ev follows in the wake of the bee. Fertilization by agents other tha bees would be sufficient to perpetuate species of fruits, and occ sionally to produce varieties, but to fertilize heavy crops sufficient feed mankind they are too inactive, and the mature insects numer cally too weak. If adult butterflies, etc., were equal in number adult bees, a famine would follow in the track of their larvæ disastrous as that caused by the armies of locusts that have bee known to sweep over the Holy Land in times past. Numerou insectivorous birds and other animals almost live exclusively o insects, their eggs and larvæ, and thus their injurious ravages a somewhat checked.

How wonderfully has Nature protected this invaluable insect- valuable not as a honey-storer, but as a fruit-producer. Practical the adult bee has no enemy, if we except the wood swallow, and the egg and larval stages its home is almost impregnable to inv ders. Of course, like the human family and other animals, it liable to the "ills that the flesh is heir to." In a state of Nature be ova and larva have one arch enemy—the bee moth—and it is well it should be so. Bees in a state of Nature are a great drawbac to bee-keepers. The honey, when obtained, is of a fourth-rate qualit owing to the quantity of foreign matter mixed through it. Tha same honey, if stored in the frames of the hives of practical be keepers, would be worth four times as much as when obtained bush-honey But this is a digression. To the careful bee-keepe enemies, not diseases, to the eggs, larva, and young bees are rarel known. The bee-keeper having his stock under control can, wit the greatest ease, regulate the supply and demand.

No district can be overstocked with bees, if we regard them fruit-fertilizers only, but as honey-gatherers it is another matte The greater number of bees kept in an orchard or fruit district, th more rapidly is fertilization carried on. Once the bee has carrie the pollen to the pistil, the act of fructification being successful, th development of the fruit is assured—the fruit has set. A few day after the bloom of the trees has disappeared the infant fruit can b seen in the early stages of growth. Standing near an apple, orang or other tree when the fruit is in its earliest stage, and a gent wind shakes the branches, you will sometimes hear the fruit fallin in hundreds, or if the tree is shaken the same results will follo In walking through an orchard in spring-time, young fruit jus formed are always seen in greater or less numbers scattered on th ground. The premature falling of these fruits is the result imperfect fertilization, caused either by slight injuries to the stigm or an insufficient number of bees to discharge the duties Natu requires of them, *i.e.*, fructification.—Albert Gale in *N. S. W Agricultural Gazette.*

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DISTRICT ASSOCIATIONS.

COORG.

Proceedings of a General Meeting of the Coorg Planters' Asso tion held on Friday, 25th February, at the Bamboo Club, Pollibet

Present.—Messrs. E. M. Breithaupt, G. Davies, W. Davies W. Finlayson, F. W Gerrard, J. Logan, F. Macrae, H. G. Meyn Jas. Rose, and H. G. Parsons, *Hony. Secretary.* Mr. John Logan the *Chair.*

The following gentlemen were unanimously elected members the Association :—

Mr. H. G. Meynell—*Proposed* by Mr. W. Davies and *Seconded* by Mr. Parsons.

Mr. A. N. Scott —*Proposed* by Mr. Parsons and *Seconded* by Mr. Logan.

The Hony. Secretary read a report of the deputation of Committee of the Association to the Chief Commissioner at Pollibe on the 17th January. The various subjects were discussed by Meeeting, and stress was laid on the point that if possible a co parative statement may be prepared of the surplus revenues Coorg as with that of other provinces, seeing that the Governm of India have under consideration the imposition of sundry lo taxes; the feeling being pronounced that a portion of the surp revenues might be justly relinquished.

U. P. A. S. I.—Various circulars read and recorded, and the nomination of the Hon'ble Mr. Hodgson as Member of Cou approved.

Treasury Drafts on Mercara.—

Read letter from the Accountant-General, dated 17th February which he said that if suitable to members of the Association would grant drafts for Rs. 1,000, but in doing so it might necessary to charge ¼ per cent. on all drafts from Rs.3,000 Rs.1,000.

Resolved that the thanks of the Association be conveyed to Accountant-General for his courtesy and that his proposal accepted.

AIL TONGA SERVICE.—

Read letter from Postmaster-General, dated 17th January, 1898, with reference to increased subsidy and change of route *viâ* Pollibetta.

Resolved that while this Association regretted it was not in a position to assist the Postmaster-General in the manner indicated, it was considered a progressive and convenient step to change the route *viâ* Pollibetta to Sidapur, and that the contractor was deserving of an increase to his subsidy if only in consideration of the change.

Read demi-official from Executive Engineer, *i.e.*, Pollibetta-Sidapur Road and Pollibetta Hospital.

The following papers were laid on the table :—

Shevaroy Planters' Association—for September, November, December, 97, and January, 1898.

Wynaad Planters' Association—for November, December, 1897, January d February, 1898.

Central Travancore Planters' Association—for October, 1897, and January, 98.

The Lower Pulneys Planters' Association—for October, 1897.

Nilgiri Planters' Association—for November, 1897.

Administration Report of the Coorg P. W. D.—for 1896-97.

Report on Public Instruction in Coorg to 1897.

Do. on Forest Administration in Coorg.

Do. on the Administration of Coorg.

nd with a vote of thanks to the Chair, the meeting closed.

H. G. PARSONS.
Honorary Secretary.

LOWER PULNEYS.

PROCEEDINGS of a General Meeting held at the Dindigul Club on aturday, the 12th February, 1898.

PRESENT :—Messrs. W. H. Gerrard (*Chairman*), G. Mengel, H. R. Newport, E. Morgan, H. O. Newport (*by proxy*), H. Ludwig (*by proxy*), . R. Gerrard (*Hon. Secy.*)

Read notice calling meeting.

Minutes of last meeting taken as read.

Read letter from Mr. C. P. N. Martin, dated 26th October, 1897, esigning membership of the Association as he is leaving the district.

1. Coffee Scale and Lady-birds.

Read letter from the Hon'ble Mr. H. P. Hodgson, dated 26th November, 1897, enquiring if Mr. H. O. Newport will go to Australia, nd if so, his terms.

Read Mr. H. O. Newport's letter, dated 6th December, 1897, in eply to the above.

Read letter from Secretary, U. P. A. S. I., dated 18th December, 897, to Mr. H. O. Newport, mentioning amount available to meet ost of importing Lady-birds, and asking him when he proposes to tart.

Read letter from the Hon'ble Mr. H. P. Hodgson, dated 24th December, 1897, enquiring what places Mr. Newport is likely to visit n Australia, &c.

Read Mr. H. O. Newport's letter, dated 31st December, 1897, to the Hon'ble Mr. H. P. Hodgson, in reply to the above.

Mr. F. R. Gerrard here said—

This was the last letter I received with reference to Mr. Newport's nomination, and was unaware what arrangements had been made, till I received Mr. Newport's Post Card, dated 23rd January, telling me that everything was settled, and that he was leaving for Australia on the 28th January, 1898, and after Mr. Newport's departure, I received his letter dated 27th January. (Letter read.) On receiving this letter I wrote on the 1st February to the Secretary, U.P.A.S.I., and Honorary Secretary, Nilgiri Planters' Association (letters read) and received from them the following replies :

Read letter from Secretary, U. P. A. S. I., dated 5th February, 1897.

Read letter from Honorary Secretary, N. P. A., dated 6th February, 1897.

This, Mr. Chairman and gentlemen, ends the correspondence that was passed in connection with Mr. Newport's mission to Australia to import Lady-birds.

After discussion in Committee,—

1. It was resolved that the Honorary Secretary write to Mr. Newport (*a*) That no consignments of Lady-birds be forwarded to India prior to Mr. Newport leaving Australia, but that he bring as large a consignment as possible with him. (*b*) The question of future consignments will be determined upon after Mr. Newport's report in India upon the success of the first consignment. He will, however, be requested to make all necessary arrangements, short of committing the Association to any expense or liability with regard to future consignments, so that if such be decided upon, they can be obtained upon such terms as arranged by Mr. Newport in Australia from Agents or persons willing to undertake the collection and forwarding of them to India. (*c*) The matter of Head-quarters in India will be decided upon after Mr. Newport's return to this country. This being the most affected district, it is very desirable that Mr. Newport's Head-quarters be in this district. Mr. Ramsay has put the Pillavally bungalow at Mr. Newport's disposal for this purpose. (*d*) That the sum collected for this business, including the contribution by Government, amounts to Rs.7,530. This sum must under no circumstances be exceeded, and is all that is available to cover every expense in regard to this business, of whatever nature. Rs.3,983 have already been spent, leaving a balance of Rs.3,547 available.

2. That a copy of the above resolutions be forwarded to the Honorary Secretary, Nilgiri Planters' Association, and he be informed "That as Mr. Newport's letter of the 6th December, 1897, in which he embodies the terms under which he would consent to proceed to Australia, and otherwise undertake the mission regarding Lady-birds and Green bug, having been forwarded to Mr. Hodgson, without comment, the terms have the consent of this Association, and this Association must now stand by them."

Mr. H. R. Newport put in a written statement taking exception to the last clause of the Honorary Secretary's letter to the Secretary, U. P. A. S. I., dated 1st February, 1898, which stated that Mr. H. O. Newport showed want of courtesy in not writing to the Honorary Secretary and Chairman of his Association regarding arrangements made for his trip to Australia before he left the district, and regretted that the Association should have made an accusation of the kind.

2. Roads and Communications.

Mr. F. R. Gerrard said—

On the 29th October, 1897, Mr. H. O. Newport and myself, on behalf of our Association, presented a petition to His Excellency the Governor, at Madura, praying Government to expedite matters in connection with the Ahtoor-Kodaikanal Ghat Road.

We hope Government in the coming official year will not forget the Madura district in making a grant towards the construction of this very important road.

The following is His Excellency's reply to our petition. *Address presented on 29th October*, 1897.

His Excellency, in replying, thanked them for the cordial welcome accorded to him, and assured them that he deeply sympathised with them in their wants. He was fully aware that both the Hon'ble Sir Henry Bliss and Mr. W. Hughes, who had an intimate knowledge of their wants, were much interested in their project of a ghat road to the Pulneys. His Excellency said that the subject had come up for consideration and careful enquiry had been made into the matter. He continued :—

"It appears from inquiries made that the line already laid out *viâ* Paniakkadu, Tandikkadu and Manalur to the foot of the hills opposite Atur will best fulfil the primary object of opening up the Lower Pulneys. The continuation of such a road to meet the made part of Law's ghat would be of little benefit to Kodaikanal, which will still derive its supplies chiefly from Periakulam. It is also considered that the improvement of the existing track by the construction of a new one from the foot of the hills to Atur is properly a work which the District Board can be expected to carry out. All that the Government can undertake under the present circumstances is to make the road between the village of Paniakkadu and the foot of the hills opposite to Atur. This road will be made at such a gradient that hereafter when the amount of traffic justifies it, it can be widened sufficiently for cart traffic. I may add that unfortunately in our present financial position it is not possible to promise you any immediate undertaking of the work, but when the estimates for the next financial year are under consideration, I will remember to bring it forward, and if it is possible then to grant the estimates for the purpose, I shall be very glad to do so, but I cannot make any positive promise. We really do not know what our financial position at that time may be. You must be perfectly well aware that the Government of India, and consequently the Government of Madras, is in considerable financial straits at the

present time, in consequence of the enormous expenditure we have had to incur on the relief of distress throughout the country, and the present heavy drain on the resources of the Empire owing to the wars that are proceeding on the frontier. And this is a matter which I very much deplore, inasmuch as it is evident to you and to me that it has the effect of retarding the development of works that are intended to promote the advancement of the country. You may rely upon my taking the very earliest opportunity of attending to this particular want of the Pulney Hills, which, as I told you, is fully recognised by Sir Henry Bliss and myself. I will just add a word to thank you for your kind welcome, and to say that I have had, in the course of my official career, a great deal of intercourse with planters in various parts of the Empire, and I have always taken a sympathetic and deep interest in their enterprise and work, far away from their native land. I hope to have the same feeling of interest and sympathy for the planters of the Lower Pulneys."

Read letter from the District Board Engineer, dated 22nd October, 1897, also his letter dated 20th December, 1897, stating that the question of connecting Ahtoor by a road to Sempatti will be considered by the District Board, when Government decides on constructing the road to Ahtoor.—*Recorded.*

3. Agricultural Chemist.

Read letter from the Secretary, U. P. A. S. I., dated 30th December; 1897, forwarding copy of letter from Mr. Drysdale Turner, offering his services as an Agricultural Chemist.

Mr. Mengel said—

That a great deal had been said and written on this subject, but very few District Associations seemed to take any interest in the matter, and unless all or most Associations were unanimous in supporting the scheme, it was no use our trying to discuss the subject.

The papers were recorded.

4. Ardaloor Post Office.

Proposed by Mr. F. R. Gerrard that the Postmaster-General, Madras, be asked to open a Branch Post office at Ardaloor.

Seconded by Mr. W. H. Gerrard, and *carried.*

5. Cattle trespass on the Siroomullays.

Mr. Morgan, in bringing his proposition forward, said—

Owners of cattle on the Siroomullays, and I dare say on the Lower Pulneys as well, allow some of their cattle to run wild, and it is impossible to catch and send them to a pound. These cattle do considerable damage to coffee estates and other cultivation, and their owners pay no attention to the constant complaints brought to them.

How are we to remedy this grievance? Unless the members of this Association petition our Collector or Sub-Collector stating the above facts.

The people of the Tinnevelly District suffered much by cattle trespass, and they repeatedly petitioned their Collector, and I am given to understand that the Collector, with the approval of the Board of Revenue, sanctioned the shooting of these cattle, after giving a month's due notice to the owners. In the Salem District a Deputy Collector (Mr. Singaravaloo Pillay) I am informed was petitioned to about cattle trespass, and he, I believe, referred the petition sent to him to his Collector, quoting the Tinnevelly Collector's orders.

What the Salem Collector has done in this matter is not known.

I therefore beg to propose that we petition our Collector or Sub-Collector to warn owners of cattle on the Pulneys and Siroomullays, giving them a month's notice to take proper steps to prevent their cattle trespassing, and to have proper men to herd their cattle, and if they own wild or semi-wild cattle to get rid of them the best way they can before the expiration of the time given, or permission will be given to shoot such cattle trespassing on private properties.

Mr. H. R. Newport, in seconding the proposition, gave his experience of cattle trespass on the Lower Pulneys.

It was resolved that the Honorary Secretary address the Collector on this subject and embody in his letter Mr. Newport's experience of cattle trespass.—*Carried.*

6. Railways.

Mr. F. R. Gerrard said—

At our last Annual General Meeting it was resolved that a petition be got up, and forwarded to the Chief Secretary to Government at an early date, urging the necessity of opening up the Branch Ra way between Dindigul and Palghat.

This matter has been attended to and a memorial signed by t leading Merchants, Landholders, Planters and others of the follo ing towns, *viz.*, Calicut, Palghat, Pollachi, Gumungalam, Pud Udamalpet, Pulni, Virupatchi, Pulakanooth, Cunnivady, Dindig Siroomullays, and Uppliamputtai will very shortly be forwarded His Excellency the Governor.

7. Mr. Quarme and Leaf-disease.

Read letter from Secretary, U.P.A.S.I., dated 19th November, 18

Read letter from Secretary, U.P.A.S.I., dated 13th December, 18

The Association confirms the opinion expressed by the Chairma U. P. A. S. I., *viz.*, that it should be left to individual Planters take up the system if they feel so inclined, and to make th arrangements direct with Mr. Quarme.

Mr. H. P. Hodgson as Planting Member of the Legislati Council and the Honorary Secretary's reply.—*Recorded.*

W. H. Gerrard (*Chairman*).
Fred. R. Gerrard (*Hon. Secy.*),
The Lower Pulneys Planters' Association,
Dindig

A LESSON FOR THE WEAK.

Do you see that locomotive engine standing on the side-trac Something has broken down about it. There is not a hiss of stea from its valves; it is still and cold as a dead whale on a beach: can't draw a train; it can't even move itself. Now, tell me, do y believe that any amount of tinkering and hammering at it wou make it go? Not a bit. Nothing on earth will make it go exce steam in the boiler, and even that won't unless the engine is in ord Everybody knows that, you say. Do they? Then why don't th act on this principle in every case where it applies?

Here is such a case. Writing concerning his wife, a gentlem says: "In the autumn of 1880 my wife fell into a low, despondi state through family bereavement. Her appetite was poor, and food, however light, agreed with her. After eating she had pain a tightness at the chest, and a sense of fulness as if swollen around t waist. She was much troubled with flatulence, and had pain at t heart and palpitation. At times she was so prostrated that she w confined to her room for days together, and had barely strength move.

"At first she consulted a doctor at Ferry Hill, but getting wor she went to see a physician at Newcastle. The latter gave him so relief, but still *she did not get her strength up;* and after being unc his treatment for six months she discontinued going to him. Bet and worse, she continued to suffer for over a year, when she hea of Mother Seigel's Curative Syrup. She began taking it, and so her appetite revived and *her food gave her strength.* In a short ti she was quite a new woman. Since that time (now nearly twe years ago) I have always kept this medicine in the house, and if a of my family ail anything a few doses puts us right.—Yours tru (Signed) George Walker, Grocer, &c., Ferry Hill, near Durha October 25th, 1893."

We call attention especially to those words in Mr. Walker's let which are printed in italics. You can pick them out at a glan They show how fully he understands where human strength com from—that it comes from digested food and not from any medici the doctor or any one else can give us. Let us have no mistake confusion of mind on this important point.

For example, Mrs. Walker was ill with indigestion and dyspeps Her symptoms, and how she suffered, her husband tells us. T disease destroyed her power to obtain any strength from food, a Nature suspended her appetite in order that she might not ma bad worse by eating what could only ferment in the stomach and her blood with the resulting poisons. The only outcome of such state of things *must* be pain and weakness—weakness which, co tinued long enough, *must* end in absolute prostration and certa death.

Well, then, she failed to get up her strength under the treatme of either doctor. Why? Simply because the medicines they ga her—whatever they may have been—did not cure the torpid a inflamed stomach. If they *had* cured it then she would have got her strength exactly as she afterwards did when she took Seige Syrup. But the trouble is this: Medicines that will do this are ra

the doctors possess them they would use them, and cure people th them, of course. Mother Seigel's is one of these rare and fective medicines. If there is another as good the public has not t been made acquainted with the fact. But even the Syrup does t impart strength; it is not a so-called "tonic;" there is no such ing. It (the Syrup) *cures the disease,* drives out the poison, pairs the machine.

Then comes the appetite (all of itself) and digestion *and strength.* ou see the order—the sequence. Yes. Well, please bear it in ind. The mechanics set the engine in order; then the stoker gets the steam.

And of the human body—the noblest of all machines—Mother eigel's Syrup is the skilled mechanic.

MARKET REPORT.

COFFEE.

Messrs. Wm. Jas. and Hy. Thompson's Report of the Colonial Markets for e Week ending April 6th, 1898, says:—Bank rate 3%. Bombay xchange closes at 1s $3\frac{7}{32}$d. Brazil Exchange 6d. Rupee paper %. $62\frac{1}{4}$. Silver 26d per oz.

Supplies at auction have again been heavy, but the tone throughout the eek has been rather firmer, and the bulk has been sold at irregular ices. The better qualities of Costa Rica were well competed for, whilst dinary and medium show a reduction of 1s to 2s per cwt. Brazil arkets have been rather firmer, and close steady.

The Dutch Sale of 19,445 bales Java, 58 cases Padang, and 1,500 bales enado held in Amsterdam yesterday went off irregularly at lower prices, od ordinary selling at 33 cents, against 35 cents at the March sale.

Daily receipts averaged 10,000 bags in Rio and 3,600 bags in Santos.

Futures have ruled steady to dearer, showing about 1s per cwt. advance, z.:—Good average Santos in Havre, May delivery, fcs. 36, in Hamburg . $29\frac{1}{2}$, and No. 7 low ordinary Rio in New York $5.75.

To-day's London official quotations are:—

	April	May	July	Sept.	Dec., '98.	Mar., '99.
SANTOS	29/-	29/3	29/6	30/3	30/9	31/3

We quote:—

eylon, mid. to good mid.	95/@107/	Costa Rica, mid. to fine...	76/@106/
Do. small to low mid.	80/ ,, 93/	Do. ord. to low middling.	50/ ,, 74/
ast India, mid. to good mid ..	76/ ,, 92/	Jamaica, good to fine ord.	38/ ,, 52/
Do. small to low mid.	58/ ,, 75/	Do. greenish to fine colory...	70/ ,, 125/
uatemala, mid. to fine...	70/ ,, 95/	African ...	27/ ,, 29/
Do. good ord. to low mid..	54/ ,, 68/	Columbian, ordinary ...	35/ ,, 40/
lvador, good ord. foxy greenish...	40/ ,, 42/	Do. good ord. to low mid...	42/ ,, 67/
		Do. mid. to fine...	72/ ,, 95/

Receipts in Brazil to 6th April compare as follows with previous ears:—

	1897-98. Bags.	1896-97. Bags.	1895-96. Bags.
RIO	3,689,000	2,966,000	1,987,000
SANTOS	5,529,000	4,552,000	2,758,000
	9,218,000	7,518,000	4,745,000

In Sale—

52 casks and tierces 26 barrels 4 bags	Plantation Ceylon, chiefly sold	60/ @ 116/6
284 bags East India.	115 bags Mysore	49/ ,, 109/
	169 bags Coorg	50/ ,, 102/6
500 bags	Mexican, part London cleaned, chiefly sold ...	60/ ,, 73/
4,106 bags	Costa Rica ,, ,, nearly all sold ...	48/6 ,, 107/
2,311 bags	Guatemala ,, ,, chiefly sold ...	35/ ,, 93/
1,576 bags	Salvador ,, ,, ,, ...	39/6 ,, 71/
822 bags	Nicaragua ,, ,, ,, ...	39/6 ,, 83/
59 bags	Vera Paz	53/ ,, —
2,762 bags	Columbian, part London cleaned, chiefly sold ...	42/6 ,, 86/6
309 bags	Peruvian, chiefly sold	34/ ,, 55/
157 bags	South Sea Island	21/ ,, 32/
64 bags	Venezuelan, part London cleaned, part sold ...	44/6 ,, 75/
20 bags	La Guayra bought in.	
99 packages	Mocha bought in.	
11 tierces 460 barrels 74 bags	Jamaica, part London cleaned, partly sold	22/6 ,, 71/

THE UNITED STATES.

	1st April. 1898.	1897.
Stock	58,120 tons	35,290 tons.
Afloat	31,530 ,,	22,350 ,,
Visible Supply	89,650 tons	57,640 tons.
Value No. 7	$5\frac{7}{8}$ cents.	8 cents.

	March. 1898.	1897.	1st Jan. to 31st March. 1898.	1897.
Imports ...	32,240 tons	33,180 tons	94,950 tons	85,480 tons.
Deliveries ...	31,240 ,,	27,590 ,,	90,830 ,,	82,060 ,,

BRAZIL.

	Stocks 31st March. 1898.	1897.
Rio	263,000 bags	287,000 bags
Santos	605,000 ,,	435,000 ,,
Total ...	51,060 tons	42,470 tons

Receipts 1st July, 1897, to 31st March, 1898.

Rio	3,647,000 bags
Santos	5,520,000 ,,

Exported 1st July to 31st March.

	1897-98.	1896-97.
Rio to Europe	1,130,000 bags	700,000 bags
,, the States, &c.	2,375,000 ,,	1,790,000 ,,
Total from Rio ...	3,505,000 bags	2,490,000 bags
Santos to Europe	3,970,000 bags	2,875,000 bags
,, the States	1,085,000 ,,	1,205,000 ,,
Total from Santos ...	5,055,000 bags	4,080,000 bags

LONDON.

	Quotations 1st April. 1898.	1897.
Middling Plantation Ceylon	101/	102/
Fair Channel Rio, floating terms	27/6	40/
Good channel do. do.	30/	44/
Good average Santos do.	28/	41/

WORLD'S VISIBLE SUPPLY.

	31st March. 1898.	1897.
Europe	222,240 tons	149,870 tons
United States ...	89,650 ,,	57,640 ,,
Brazil	51,060 ,,	42,470 ,,
Total ...	362,950 tons	249,980 tons
February 28th ...	355,750 tons	233,860 tons

JAVA.

THE GOVERNMENT CROP.

1898.	1897.	1896.
133,723 bags*	360,000 bags	290,000 bags

* Latest Estimate.

SUMMARY COMPARED WITH LAST MONTH.

European Stocks	4,090 tons	Increase
,, Visible	10,790 ,,	,,
United States Stocks ...	1,000 ,,	,,
,, Visible ...	9,350 ,,	,,
Brazil Stocks	12,940 ,,	Reduction
World's Visible	7,200 ,,	Increase

TEA.

Messrs. Gow, Wilson and Stanton's Indian, Ceylon, and Java Tea Report, dated April 7th, 1898, says:—

QUANTITY BROUGHT TO AUCTION IN LONDON FROM 1ST JUNE TO DATE.

	Indian.	Ceylon.	Java.
1897-1898...	1,447,787 packages.	1,019,209 packages.	37,703 packages.
1896-1897...	1,460,394 ,,	958,314 ,,	37,334 ,,

18,763 *pkgs.* INDIAN
16,989 „ CEYLON
695 „ JAVA
} Total 36,447 packages were offered in public auction this week.

Duty was paid upon 18,301,816 lb. of Tea during March, against 16,997,776 lb. during March, 1897. This increase is encouraging after the marked falling away referred to last week.

Indian. The only auction held was on Monday; it passed without quotable alteration. The next public sale is advertised for the 18th inst. The Official Wire gives exports to U. K. from 1st April to 31st March as 134,000,000 lb., against 131,770,000 lb. last season.

Week's av. of Tea sold on Garden Account, 1898, 14,688 pkgs., av. 7·60d. 1897, 11,303 pkgs., av. 7d.

	1898.		1897.		1st June to date 1897-8.		1st June to date 1896-7.	
	Pkgs.	Price.	Pkgs.	Price.	Pkgs.	Price.	Pkgs.	Price.
Assam ...	5,669	9·54	3,509	8	508,443	9·89	502,938	10·20
Cachar & Sylhet...	4,049	5·79	7,167	6½	280,928	6·86	276,925	7·36
Chittagong ...	—	—	—	—	5,686	7·15	3,298	7·48
Chota Nagpore ...	—	—	125	5¼	1,666	5·03	1,944	5·12
Darjeeling ...	—	—	—	—	66,506	11·08	57,915	1/·46
Dooars ...	4,864	7·03	376	6¾	134,166	7·44	129,402	7·55
Kangra, &c. ...	—	—	55	5¾	8,268	7·14	5,740	7·10
Neilgherry ...	21	6·75	—	—	6,203	6·93	3,864	7·02
Terai ...	40	4·75	—	—	20,016	7·19	13,488	7·21
Travancore ...	45	5·25	71	6¾	29,604	6·36	26,748	7

Total sold on Garden Account 1st June to date 1898, 1,061,014 pkgs., av. 8·72d. 1897, 1,022,260 pkgs., av. 9·06d.

Comparative prices of Indian Tea in London:—

		1898.	1897.	1896.	18
DUST.	(Fair ordinary, dark liquor) ...	3½d	4d	4¾d	4
FANNINGS.	(Red to brown, strong rough liquor) ...	3¾d	4d	4d	5
BROKEN TEA.	(Brownish to blackish, strong liquor) ...	6d	6¾d	6d	7
PEK. SOUG.	(Blackish greyish, useful liquor).	6¼d	7d	6½d	
PEKOE.	(Greyish to blackish, some tip, useful liquor) ...	7d	8¼d	7¾d	8
PEK. SOUG.	(Blackish greyish, inferior liquor).	4¾d	5¼d	5¼d	6
PEKOE.	(Blackish greyish, some tip, inferior liquor) ...	5¼d	6d	5¾d	

Ceylon. Quotations were fully maintained with a generally firm t
It is probable that there will be no auction until the 19th inst.
Official Telegram give shipments to U. K. from 1st Jan. to end of Ma
as 24,250,000 lb., against 24,000,000 lb. same time last year, and estima
the quantity for current month as 9¼ to 9¾ million lb. Average 7·1
against rather over 7½d. last year.

Ceylon Tea sold on Garden Account 1st January to date 18
310,480 pkgs., av. 7·62d. 1897, 282,414 pkgs., av. 8·8d.

Comparative prices of Ceylon Tea in London:—

		1898.	1897.	1896.	1
PEKOE SOUG.	(Ordinary leaf; fair liquor) ...	5¾d	6d	6d	
PEKOE	(Ordinary leaf, little twist; fair liquor) ...	6½d	7d	7¼d	
PEKOE SOUG.	(Rather bold leaf; indifferent liquor) ...	4½d	4¾d	5d	
PEKOE	(Somewhat bold leaf; indifferent liquor) ...	5d	5½d	5½d	

MOVEMENTS of TEA in LONDON (in lbs.) during MARCH, from TEA BROKERS' ASSOCIATION FIGUR

	IMPORTS.			DELIVERIES.			STOCK.		
	1898.	1897.	1896.	1898.	1897.	1896.	1898.	1897.	1896.
INDIAN	6,688,567	7,059,163	5,619,482	11,717,357	11,194,511	10,380,373			
CEYLON	7,874,612	6,500,920	7,364,338	8,095,844	7,032,358	6,309,592			
JAVA	464,030	320,110	246,050	293,300	217,770	310,660			
CHINA, ETC.	1,283,613	489,951	938,779	2,701,361	3,035,004	3,288,085			
TOTAL lbs. ...	16,310,822	14,370,144	14,168,649	22,807,862	21,479,643	20,288,710			

FROM 1st JUNE TO END OF MARCH.

	IMPORTS.			DELIVERIES.			STOCK.		
	1897-8.	1896-7.	1895-6.	1897-8.	1896-7.	1895-6.	1897.	1896.	1895
INDIAN	133,389,215	129,858,549	116,643,284	106,572,938	105,319,809	100,474,928	59,051,489	51,289,350	45,729,5
CEYLON	78,782,754	75,070,548	67,729,698	80,661,592	75,080,994	67,876,536	18,074,342	18,547,088	17,575,0
JAVA	2,931,250	2,857,750	3,251,990	2,982,770	3,073,910	3,150,210	700,700	771,540	1,039,2
CHINA, ETC.	31,730,832	32,632,172	40,543,371	27,980,669	33,827,906	35,016,724	16,753,502	18,443,861	25,237,5
TOTAL lbs. ...	246,834,051	240,419,019	228,168,343	218,197,969	217,302,619	206,518,398	94,580,033	89,051,839	89,581,3

Java. The sale passed slowly at about previous rates, several breaks being withdrawn.

Bank Rate 3 per cent. Exchange on London three months sight:—Calcutta 1/4 3/32. Colombo 1/4 3/32.

PUBLIC SALE OF SOUTH INDIAN TEA.

(AVERAGE FOR ALL INDIA 7·60*d.*) *April 7th.*

GARDEN.	Total.	Average.	Broken Org. Pek. or Flowery Pekoe.		Pekoe and Unassorted.		Broken Pekoe.		Pekoe Souchong.		Broken and Souchong.		Fannings, Du and Various	
	Quantity	Price.	Quantity	Price.	Quantity	Price.	Quantity	Price.	Quantity	Price.	Quantity	Price.	Quantity	Pric
Neilgherry ...														
Curzon ...	21½c	6¾	...	...	21½c	6¾	...	...	...	...	...	...	...	...
Travancore ...														
Goatfell ...	45	5¼	...	...	15	5	20	† 5¾	10	4½	...	...	...	...

Teas marked thus † were withdrawn.

PLANTING OPINION.

A WEEKLY JOURNAL

WRITTEN BY PLANTERS FOR PLANTERS.

L. III.] COONOOR, SATURDAY, MAY 7, 1898. [No. 18.

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UBSCRIPTION.—Advance Rates: Yearly, Fifteen Rupees; Half-yearly, t Rupees; Quarterly, Five Rupees, and Monthly, Two Rupees, including age. Single Copies, Eight Annas.

DVERTISEMENTS.—From the 1st October, 1897, the charge for advertisements will be: 4 as. per line for the first, 3 as. for the second, 2 as. for the third and succeeding insertions. Five-line advertisements Subscribers will be inserted for three issues for one rupee; non-Subbers will be charged two rupees.

OMESTIC OCCURRENCE.—The fee for inserting a domestic rrence will be *One Rupee* for each insertion, payable in advance.

.B.—Remittances should be sent to the Manager, "Planting Opinion," anade Row, Madras.

IMPORTANT NOTICE.

The Business Offices of this paper having now been oved to Madras, all remittances should be made pay- e to the Manager of *Planting Opinion*, 11 and 12, cond Line Beach, Madras, who will also attend to all vertisements, &c.

Letters to the Editor should be addressed to Coonoor, usual.

SEASON REPORTS.

NOTICE.

TO OUR SEASON REPORTERS.

Please post your next reports to reach Madras on Friday, the 13th May, 1898.

Season Reports should be sent to the Printers, Messrs. ADDISON & Co., direct, and not to *Planting Opinion* Office.

Upper India. Generally speaking, the tea season has opened fairly well, and many gardens are slightly ahead of last year's outturn.

Coorg. POLLIBETTA, *5th May.—Weather.*—Rain has been falling nearly every day since last report, mostly of evenings and during the night. All thunder-showers from N. E. *Crops.*—Conditions favourable to blossom which came out on 26th and 27th ultimo. Some rain on blossom which came out on 30th ultimo. *Labour.*—Sufficient for the time of year. *General Health.*—Good.

Nelliampathy. *4th May.—Weather.*—Rain fell at last on several days between 19th and 28th of last month; in some places more than 7 inches were measured, while here I got only 2 inches. *Crops.*—Blossom has been out, and a marvellously good one for the most part it was, and every one is pleased, as crops ought to be up to the average this year. I fear most of the first blossom (February) has gone, seeing it had to hurry on for two months without a drop of rain. Coffee looking very well everywhere. *General Health.*—Lots of fever going.

Nilgiris. KIL KOTAGIRI, *29th April.—Weather.*—All that could be desired for the blossom; if the rain keeps off by to-morrow, all blossom will be set, I think. Some came out on Monday; the rest has been coming forward since. Most of the estates promise well this year, but none as

well as the two estates belonging to the N. P. Co. One estate of about 125 acres bearing coffee looks as if it would give well over 40 tons. We had no heavy rain this last burst that came on the 21st and brought out our blossom. *Labour.*—Too plentiful; coolies are flocking up, and more maistries came this year than ever known before. Last year's labour dismissed. *Health.*—Very bad. Fever prevalent. There are more coolies down now than usual at this time of the year.

Coonoor, *5th May—Weather.*—Not much rain since last report. The coming of the "chota bursat," which only means very strong wind and cloudy skies to us here, seems to be accomplished. *Crops.*—There has been a very nice blossom indeed, out on most estates, and everything looks favourable. Tea, I'm sorry to say, is decidedly in a poor way, but will probably make up lee-way after the south-west winds are over. *Labour.*—Plentiful. *Health.*—Indifferent.

Nellakotta, *3rd May.—Weather.*—Since my last report, dated 19th April, I have gauged on 20th April 7 cents, 22nd April 27 cents, 23rd April 44 cents, 27th April 25 cents, 30th April 30 cents, and 30 cents last night. We have had quite enough rain for the present. *Crops.*—Blossom was out on the majority of totes about the middle and end of last week. On all estates I have seen it was simply superb, and as it appears to have set nicely, we ought to have an exceedingly good season. But there are so many slips 'twixt the cup and the lip (the planter's I mean) that I won't prophesy. All I will say is that conditions could not be more favourable for a rattling good crop. *Interesting Items.*—Your Coonoor correspondent, I see, wants some one to start a subject for discussion during the slack season. Let me suggest that he should exercise his ingenuity in solving a riddle lately propounded in *Planting Opinion.* Why do the spring showers kill young plants wholesale? Is it because, after a long period of drought and consequently of rest, the early rains force the young plants to make a sudden effort beyond their strength?

THE CURRENCY SCHEME.

The names of members of Lord George Hamilton's Currency Committee were announced a few days ago. Scarcely had these been published when information reached us as to the general suggestions of the U.P.A.S.I., particulars of which will be found in the U.P.A.S.I. section of our present issue. Again, this had not been fully set in type before an announcement appeared as to the proposals which the Government of India had submitted to the Secretary of State for consideration. It is evident, therefore, that there is at last a prospect of some progress being made; but it is equally clear that the lines marked out by the Government of India are by no means those that the U.P.A.S.I. would wish to see followed. Government's scheme is not a very complex one. It aims at obtaining a reserve of gold coin by borrowing in England. British credit is to be turned to account. It is proposed that Parliament should empower the Secretary of State for India to borrow up to £20,000,000. This is to be kept quite separate from the usual borrowings of the India Office. The money is to be shipped to India and placed in the Reserve Treasuries. According to the Government of India's despatch, "the first use to which this gold would be put would be to supply the deficiency in balances caused by the sale of silver. Government reckons that its sale of ten crores of coined rupees would return to the treasuries only Rx.6,000,000, and the balance of Rx.4,000,000 would have to be made up out of the gold in hand, and would absorb about £2,700,000 of The result of the first year's operations would therefore omitting altogether any effect it might have in diverti gold towards India in the ordinary course of commerce (t is under conditions the same as those now existing) t Rx.6,000,000 of the existing rupee currency would be tak out of public use and paid over into our treasuries, inste of being returned into circulation in payment to import of silver, and that a further sum of Rx.4,000,000 wo cease to exist as coin forming portion of our balanc being replaced therein by Rx.2,700,000 held in gol To make its intentions still more clear, the Governm proceeds to consider the result of a similar operat during the second year. It remarks: "Suppose operation be repeated a second year, the amount of curr circulation available for trade purposes would be reduc by Rs.12,000,000, and the amount of coined rupees in possession changed into the form of gold would £5,300,000, giving a total reduction of silver rupee curren of twenty crores. Certain considerations stated are regard as indicating that before this point is reached the exchan rate would have attained a level of sixteen pence, or ev higher, and sovereigns would have flowed into the coun to fill up the deficiency in the current circulation outsi our own balances caused by the withdrawal of silver coi

From this we gather that 1*s.* 4*d.* is still the level t Government favours, and that its endeavours, at least first, are to be directed towards nailing the rupee at ab that level. When this has been done, the sovereign w says the despatch, "be a recognised coin of the Empire use, in its chief cities at least, and, as long as this condit can be maintained, exchange will be stable at about 16 Government claims that it will always have the pow "to carry the operation even farther by withdrawing a s larger quantity of silver and replacing it by gold coin, a it recognises that circumstances may arise in which su measure may be forced upon it; but the present intent is rather to trust to automatic operations of trade." observes: "The amount of coin required for the needs commerce increases every year. When any one ye permits of no increase in the amount of silver coin, we m reasonably expect that the effect of the increasing dema for coin will be to raise exchange to a point at which go will flow into the country and remain in circulatio The position will thus become stronger and stronger time goes on." Until this stage is reached Governme will part with none of the gold in its possession. Her the new scheme may be defined as having for its object t establishment of a gold standard with a view to t ultimate introduction of a gold currency.

Many arguments might be urged against the schem but there is also a great deal to be said in its suppo The evils of a varying rupee have been experienced for ma years. They have resulted in a dangerous tightness money, the practical effect of British distrust in the rup When that coin fell lower and lower in gold-value, it dam aged trade and seriously affected the Government's fina cial position. When it began to rise again, the planti community felt that their time to suffer had come ov again. It will be seen from the remarks made in t U.P.A. section that Mr. Romilly has come to the conclusi that nothing better than a compromise with other int ests can be hoped for. Government obviously consid

at a compromise will be arranged if the rupee be fixed at 4*d*. It follows, therefore, that prospects of getting a lower vel agreed to are not very bright. The Secretary of State proves of the objects of the scheme, and the Currency mmittee will have to consider whether these objects can st be attained by that scheme, or otherwise. It will be most interesting and difficult question to solve, and we ust that the planting community will be able to put rward strong and capable witnesses so that there may no room left for subsequent doubts as to whether the tter was fully represented from the planter's standpoint. they can get the Government of India's scheme rejected favour of a policy of reopening the mints, or if they can en get a lower level than 1*s*. 4*d*. agreed to, they will hieve a great victory.

BEE-KEEPING ON PLANTATIONS.

More than once has the matter of bee-keeping been ought to the attention of the readers of these columns being particularly suitable to plantation life. To its st possible economic importance to Indian planters we nfess we have not paid sufficient attention; this has en left to a resident of the West Indies, Mr. W. K. orrison, whose letter on the subject will be found elsehere. In view of the scant attention that has been given our indigenous bees and the paucity of attempts at mestication, it is remarkable to find that Californian e-keepers are anxious to introduce some of the Indian ecies to America. As Mr. Morrison remarks, it would greatly to the advantage of future Indian apiculturists r experiments to be carried out with our indigenous bee America. All modern hives with their ingenious pliances and fittings are based on the most accurate easurements of the architecture of *Apis mellifica*, the uropean or Italian bee. A smaller or larger size of bee ould necessitate the manufacture of different-sized hives d fittings, and it is very certain that such work could t possibly be done in India. True, apiculture may be rsued in the old-fashioned way, but this would involve very large loss in the yield of honey. To manufacture e pound of comb-wax, bees must consume many times at amount of honey, and thus it is that artificial combs ve largely replaced the natural insect-made ones. There e also many other and extremely ingenious appliances hich materially lessen the cost of production, and to spense with which would greatly handicap Indian iculturists.

It is clear, therefore, that if bee-keeping in this country ever to take the important place it should hold, American genuity must be availed of. In the A. I. Root Company, edina, Ohio, U.S.A., we have a powerful apicultural ganisation willing to further this matter of introducing dian bees into the Southern States. Not of course out sheer philanthropy, but from the more effective feeling self-interest. For, as we have remarked before, merican bee-keepers, or bee-masters as they call themlves, are very keen on experimenting with Indian bees, ore especially the *Apis dorsata* variety. To meet the mericans half-way, the work of collecting the desired rieties should be borne on this side, while the cost of rwarding would probably be entirely defrayed by the A. I. Root Company. Such a matter of course cannot be expected to develop spontaneously. Those interested in the matter should place themselves in direct communication with the firm mentioned, and ascertain exactly what is required, while on our side we shall of course be very glad to publish any information on the subject placed at our disposal.

Some of our readers may be wondering why we have omitted all mention of the advisability of introducing the European or so-called Italian bee to India instead of undertaking such purely experimental work as the Yankee managed business of domesticating the wild Indian bee. We would remind these that experiments with the Italian bee have, for many years past, been carried on in India—the most notable ones were located on the Nilgiris—with a uniform want of success. Further, that special and exotic honey-flowers are a necessity to the Italian bee, while the indigenous bee can take very good care of itself by gathering the nectar of the flowering shrubs of the country.

The production of honey from India Mr. Morrison puts, in a private letter to us, at one million tons per annum, a prodigious amount that, if realised, would utterly swamp the markets of the world. The planter has many points in his favour: he has a profession that gives him a good deal of time to devote to such a bye-industry as apiculture. Cheap labour in abundance is at his command, and for a market he has his choice between London and the teeming millions of the land. Were the American experiments to be successful—and there seems no valid reason why they should not so be—apiculture on plantations would soon prove an important rival to the culture of the staple itself. Many individual bee masters are in receipt of very handsome incomes, too, incomes derived from the application of a comparatively tiny capital. In some cases as many as 75 tons yearly are produced on single "farms," and when we remember that the wholesale prices of honey are not much under those of plantation coffee, the possibilities of bee-keeping may be appreciated.

NOTES.

Chloroforming plants. It is said that a chemist of Bavaria has prepared a fluid that has the power, when injected into the tissue of a plant, near its roots, of anæsthetising the plant—not destroying it, but temporarily suspending its vitality. If this process is found to answer practically as well as it does experimentally, the discovery will prove of immense importance to planters and horticulturists generally.

The Colombo market. It is very encouraging to note the strength of the Colombo market, especially at this period of stress in the tea trade. Local papers state that prices were (and perhaps still are) fully 1*d*. to 1*d*. ½ above London rates, owing to the strong and continued demand for Russian and Australian markets. The greatest danger seems to lie in a scarcity of freight, but as such a large proportion of Colombo sold tea does not go to London, not much difficulty is really likely to be experienced.

Japanese tea and the Russian market.

The St. Petersburg *Viedomosti* reports, says the *H. and C. Mail*, that a regular communication by steamers will be established next year between the ports of the Black Sea and Yokohama. The chief aim of the promoters of this service will be the export of Russian petroleum to Japan, and in exchange for this commodity raw iron and camphor are to be brought back. The Japanese Ministry of Trade has lately sent one of its officials to Russia with a view to finding openings for Japanese goods in that country. The producers of tea in Japan intend to introduce their tea into Russia, and to that end the first depôts for the sale of Japanese tea in Russia will shortly be opened in Moscow, Warsaw, and Odessa. An important Company has been formed in Japan to carry out the project.

The Indian Currency Committee.

We give below the names of the members of the Currency Committee; the "terms of instruction" are as follows :—

"'It will be the duty of the Committee to examine the proposals of the Indian Government, and any other matter which is strictly relevant thereto, including the probable effect of any of the proposed changes in the monetary system upon the internal trade of India and upon taxation, and to submit any suggestions which it may think advisable for establishing a satisfactory currency system and securing a stable exchange.' The last sentence would seem by its own terms to preclude any possibility of open mints, even if the Committee were in favour of them. But, inasmuch as it is reported that the City generally is distinctly averse to the gold reserve scheme, a return to open mints is by no means an utter impossibility. As was expected, Sir Henry Fowler is to be the Chairman, and a better Chairman could hardly have been selected. The members are Lord Balfour of Burleigh, Secretary for Scotland, who is said to be the probable successor of Lord Elgin; Sir John Muir, of Messrs. Finlay, Muir & Co., Calcutta, who presumably represents planting interests; Sir Francis Mowatt, Permanent Secretary at the Treasury; Sir David Barbour, formerly Finance Minister in India; Sir Charles Crosthwaite, Member of the India Council; Sir Alfred Dent, a China Merchant and Founder of the North Borneo Company; Mr. F. C. Lamarchant; Mr. Hambro; Mr. Holland, President of the Manchester Chamber of Commerce; and Mr. Robert Campbell, Chief Manager, National Bank of India. The Secretary is Mr. Robert Chalmers, of the Treasury."

Tea-cess on Indian tea.

It has been felt with yearly increasing force that the funds now provided by Indian tea-planters for the exploitation of new markets are a great deal too small to effect their purpose. It has been several times proposed that Government be approached on the subject of levying an export cess on all tea shipped from India in the very successful Ceylon fashion. From one reason and another, however, the matter h never been pressed home. The latest suggestion is the effect that an attempt should be made to put in practice, voluntarily, the proposal for a tax on every pou of tea sold. This could be done by an unanimous agr ment being arrived at to instruct the Selling Brokers deduct a certain rate per pound or a certain percentage, might be agreed upon, from all garden invoices passi through their hands. The Brokers to collect the proce and pay it to the Association. It was estimated that charge of half pie per pound on 120 million lb. wo realize about three lakhs of rupees, or three times as mu as was now collected under the voluntary levy.

The General Committee of the Indian Tea Associat are of opinion that the suggestion is worthy of care consideration, as apparently providing a very easy a practicable mode of raising a larger sum of money, and was decided to pass it on to the Association in London their opinion, stating at the same time that the Gene Committee on this side were inclined to view the propo with favour.

Export of bones from India.

Our contemporary, *Indian G dening*, will by no means admit th Dr. Leather was correct in his findi that Indian soils did not, as a rule, need phosphatic manur In a vigorous leaderette he says :—

"In a recent issue of *Capital* there appeared an article on t subject which is calculated to convey the idea that bones are of manurial value. The writer says : 'Bones have failed *with their ph phates* to make up for the *deficiency of phosphates* in Indian soi This will strike the intelligent reader as a contradiction in ter To admit the 'deficiency of phosphates in Indian soils,' and argue that a substance *having* phosphates has failed to make that deficiency, is surely curious logic. Phosphatic manures hav very high value in the case of certain crops, notably indigo. But argue that because 'the experiments conducted at the vari Government farms with phosphatic manures have not produced effects which they were capable of,' and that therefore bones ar no manurial value, seems to us to be based upon wrong premis We have before us the report on the Cawnpore Experimental Fa for season 1896-97, wherein is a statement showing the results tained in the cultivation of the country potato. Here we find t the unmanured plot gave a higher outturn per acre than any of manured plots. It would be very unsafe to argue from this t manures in general are of no value for potatoes. It has been dem strated by the Chief of the Division of Chemistry in the Uni States Department of Agriculture that potatoes contain about parts per thousand of potash salts; therefore, the most suita manures for potatoes would appear to be such as contain a la proportion of potash. To ascertain the exact value of any man for a particular crop, it seems to us that the point to settle is proportion of the various chemical constituents each crop remo from the soil. This once ascertained, it would be a comparativ easy matter to determine the particular kind of manure suitable any particular crop. To carry out such analyses of soils, it wo be necessary to have the services of a properly qualified Agricultu Chemist. To make rash statements regarding the worthlessnes any particular manurial product without having obtained facts b ing on the point is not a satisfactory method of disposing of question. Every gardener knows the value of bone-meal a fertilizer for even flowering plants, while for fruit trees, as a r bone-meal is a most important manure. We disproved Dr. Leath conclusions as to the value of bones in our issue of 30th Septem 1897, and we maintain that the export of bones from India certainly calculated to deprive the country of a most valuable con tuent of the soil."

The London Market.

Coffee.—The improvement notic as having set in at the end of l

COFFEE SHADE TREE.

Sun-dried Erythrina Lithosperma loppings, &c., contain per ton :—

61·50	lbs.	Nitrogen.
57·38	„	Potash.
14·92	„	Lime.
13·68	„	Phosphoric Acid.

Seed cured under Messrs. Sutton and Sons' advice.

Orders should be booked early for the coming crop of seed from the parent trees of above analysis at Rs.6 per pound containing about 2,000 seeds. *Germination guaranteed.*

Only thornless variety extant, and is not procurable anywhere save from the

MANAGER, ARIENKOW ESTATE,

Shencottah.

eek, says the *P. M. Review* of 9th April, and although a rger quantity has been offered for some time, there has en a strong demand, and a further advance has taken ace in some descriptions. The firmness in several of the reign markets has had much to do with the advance here, e American market in particular having risen as much 3*s.*, probably caused by the fact of a duty being imposed ere. The opinion has, moreover, been generally growing at values had fallen quite as low as they should under the esent circumstances of a decidedly larger consumption, d unless arrivals come forward in much heavier quanti-s, it is more than likely that the lowest point has been ached. In the terminal market there has been an vance of 1*s.*, and rates are from 1*s.* to 2*s.* dearer in ntos. Of East India kinds Mysore continues to come rward very slowly, and prices in consequence are well aintained. The first shipment of Vera Paz has just rived; the quality is decidedly superior to that of last ar, and in consequence very full prices were obtained.

LONDON COFFEE RETURNS.

—	HOME CONSUMPTION.		EXPORT.		STOCK.	
	1898	1897	1898	1897	1898	1897
For the week ended April 2, 1898.	Tons. 374	Tons. 321	Tons. 626	Tons. 373	Tons. 11,974	Tons. 10,754
For the 13 weeks ended April 2, 1898.	3,793	3,601	5,436	3,689	—	—

Indian Teas.—With an improved demand prices generally re firmer. The next public sale will not be held until onday week. The finer descriptions have again been ctively competed for, and owing to the comparatively small pply to come forward it is quite probable the highest point r really fine tea has not been reached. At this period of e year there is generally a considerable shrinkage in the pply of the better class teas, but it promises to be more ronounced than usual this year, as nearly all the produce the principal gardens is disposed of. For all useful edium sorts there has been a fairly active demand. After aster, when a more general enquiry may be expected, a tronger market is anticipated, as the bulk of the future pplies will no doubt consist of the commoner kinds. As the tock of the latter is now very considerable, the prospects are kely to be more favourable to the buyer than otherwise, specially for the thin liquoring teas, as similar grades of eylon are coming forward freely. The figures are more atisfactory for the past month than for some time, as he following will show:—Imports 6,688,000 lb. against ,059,000 lb. in March last year, while the deliveries are pwards of 500,000 lb. more, or 11,717,000 lb. and 1,194,000 lb. respectively; and the increase in the stock as been reduced by nearly 1,000,000 lb. compared with ebruary, the quantity now being 59,051,000 lb. against 1,289,000 lb. There were 18,763 packages catalogued for ublic sale on Monday, 1,790 of which were withdrawn, and rom now until the end of July the sales will only be held n the Monday in each week.

LETTERS TO THE EDITOR.

BEE-KEEPING FOR PLANTERS.

SIR,—By the last number of *Planting Opinion* I see that experiments with *Apis mellifica* in the Nilgiris have failed, but no reasons are given for the failure. I have written somewhat on this subject for our bee journals, so that this matter greatly interests me. Cannot some one write a synopsis of the experiments thus far? It would be very interesting to the bee masters of the world. I am, however, of the opinion that some of your native races (or species) of bees would prove excellent honey-gatherers, as you suggest in the article under consideration. It would be a difficult matter, however, for an amateur to handle such experiments. A larger or a smaller bee than *Apis mellifica* will require an entirely different hive, for all the measurements of the modern movable frame hive would have to be changed—no small change surely, for modern hives are based entirely on accurate measurements of bee architecture.

The bee-keepers of America are anxious to try the bees of the Indian species, so why couldn't this matter be arranged to work for the ultimate benefit of both Indian and American planters? There are 500,000 bee-keepers in America. How many in India? This is entirely a practical question. The Editor recommends the ladies to try bee-keeping. I would rather recommend the planters to try it, for it requires both energy and hard work to make a success of this business; in fact, the same management that is required for a tea plantation is required for bee-keeping If your planters are really anxious to get hold of a paying industry, here is one that promises very well and which dovetails with the planting interest. It will only take a small sum of money to try it experimentally.

DEVONSHIRE, BERMUDA ISLANDS, *April* 27, 1898. W. K. MORRISON.

GENERAL ARTICLES.

THE U.P.A.S.I. SECTION.

(UNDER THE CONTROL OF THE SECRETARY, U.P.A.S.I.)

THE endeavour to arrange for the Planter's 'case' in regard to the Currency question to be put before the Currency Committee, has achieved some success. The name of Mr. G. L. Acworth, ex-Chairman of the U.P.A.S.I., has been placed before the Secretary of State by the Government of India, and there is very little doubt that Mr. Acworth will be allowed to, and will, give evidence. Besides this, the Hon'ble Mr. Hodgson, the "Planting Member," leaves for England this month, and it is hoped that he will be in time to obtain a hearing. Again, the names of those planters who are known to be in England just now have been transmitted to Mr. Acworth, who has been requested to call at the India Office and make all arrangements that may be necessary to have all, or at any rate some, of these gentlemen invited to give evidence before the Committee. It seems fairly certain, therefore, that planters will have a fair opportunity of giving expression to their views.

What those views are can scarcely be stated, for

FOR SALE.—Hand Camera ($\frac{1}{4}$ plate) by Robinson, Dublin, in first-class condition with 12 slides for plates—also some $2\frac{1}{2}$ dozen plates (more or less), 6 developing dishes, 3 optimus printing frames, and large assortment of photographic chemicals. Price on estate Rs.75. No offers. Apply—M. W. LITTON, Shaniwarsanté, N. Coorg.

allowance must be made for differences or variations of opinion on points of minor importance. The broad arguments that are likely to be pressed upon the notice of the Committee are those contained in the U.P.A.S.I. circular on the subject, issued about three months ago. As, however, it is very improbable that the Currency Committee will fall in with the suggestions therein made with respect to the reopening of the mints and the levy of an export duty, there is some prospect of planters agreeing to, or perhaps even suggesting, a compromise. In fact, the Chairman of the U.P.A.S.I., while pointing out to Mr. Acworth that an export duty in India would need to be accompanied by an export duty in Ceylon, has suggested to that gentleman (1st) to visit Mr. Christie and arrange to work in unison with Ceylon as far as possible; (2nd) to work in with any representative of Northern India who can be found; (3rd) to take the U.P.A. circular as his basis; and (4th) if he finds that the fixing of the rupee at a certain gold-value is insisted upon, to get that value fixed as low as possible.

Mr. Acworth is given a free hand, but suggestions have been made to him as to the line of argument the Association would wish him to pursue. It is probable that no amount of evidence or even proof that the mints ought to be reopened would carry weight with the authorities, as Government is committed to an entirely different policy, and is likely to have the support of a strong body of merchants and others whose desire is to have a stable exchange. As this party is almost certain to win, the most that planters can hope for is a reasonable compromise. Hence the suggestion to Mr. Acworth that if the decision of the Committee is that attempts to give a fixed value to the rupee ought to be continued, he should direct his aim mainly towards getting the level fixed *as low as possible.* The competition of China, Japan and the Straits is, to all intents and purposes, a bounty-fed competition, and planters must try to protect themselves against anything of this kind, even if they fail to convince Government of the desirability of giving India "honest money."

NITRATES versus NITROGEN.

Practical Hints to Planters.

In a recent issue we wrote at length on the great practical importance of the nitrate-forming bacteria to the planter. Granted favourably conditions of soil, temperature (95° to 100° F. is supposed to be best), moisture and aeration, our tiny friends can supply our crops with all, and m than the nitrogen they require. Over the actual clima changes that influence the state of the soil so largely we course, have no control. But, on the other hand, it perfectly feasible, by means of intelligent cultivation, modify the effects of the weather in almost any directi required. This question, as Mr. A. Baur, of the Cey Manuring Works, points out to the public, is not one theoretical importance alone: it is of vital practical inter to all interested in agriculture. It is a significant fact th the leaders of present-day scientific cultivation in Southe India lay much stress on the efficient cultivation of t soil, as well as on the very expensive chemical manu they use so freely. Bearing in mind the great costlin of up-to-date cultivation of coffee, for instance, running to three hundred rupees per acre annually, it is surely idle question to investigate whether a large portion at le of the cost of the chemical manures might not be avoid For at present there is no doubt that manuring claims t first attention of all planters.

With our present system of cultivation great bacter activity is only present for certain very limited periods the year. It should be the aim of the planter to prolo this favourable season as much as possible. Putting on o side the conservation of bacteria-charged soil under artific conditions, a great deal can be done in the field itself. very dry weather the growth of bacteria is arrested, a more especially in the case of tea plant growth is noticeab and simultaneously checked. This is not due to the actu want of water to the plant roots, but to want of the fo ordinarily produced by the bacteria. And it is just at th period that most water is used up by the plant in endea ouring to make what growth it can. It is in this wa Every pound of plant issue formed by the plant is ma from a definite quantity of nitrogenous and mineral elemen present in the soil. This food is drawn up as "soup." good and rich soil, this "soup" is highly concentrate and consequently the proportion of water used per pou of plant tissue is very much less than in poor soil. F in poor soil the "soup" is very diluted, and compar tively huge quantities of water must be used befo the proper amount of food is drawn up. Soil, otherwi rightly considered as rich and fertile, may, by a prolonge drought, be rendered sterile for the time being by the wo of the bacteria being interrupted. Crude nitrogen is no use to the plant, as until converted by bacteria in nitrates the plant roots cannot take it up. It is obvio here that deep and thorough cultivation would, by increasi the water-holding powers of the soil, do much to obvia the ill-effects of the drought.

On the other hand, excess of moisture is just as fatal the well-being of bacteria as excessive drought itse Other things being equal, and paradoxical though it ma seem, deep cultivation will likewise go far to correct th evils of superfluous moisture. For, instead of lodging a comparatively small quantity of soil, the rain will soa through the porous surface and drain away into the subso

General rules cannot, of course, be laid down as equall applicable for such diverse crops as coffee and tea, no should any given system be adopted indifferently on a soils. Clay soils, for instance, should be treated in quite different manner to light soils, and soils rich in humus soils deficient in that constituent. Coffee requires certa

PLANTING BOOKS.

Map of Ceylon Tea Estates Rs.9; colored Rs.10; Mounted in case Rs. 14.

Map of Ceylon Plantations, Plain Rs.8. Inga Va, Rs.2-8. Areca Palm, As.12. Cocoanut Planter's Manual, Rs.4-10. Ceylon Manual of Chemical Analyses, Rs.3-10. Tobacco Cultivation, Rs.3-10. India Rubber (now in the Press). Coffee Planter's Manual (now in the Press). All about Spices, Rs.3-10. Coffee Tree and its Enemies, Rs.1-8. All about Grub, Rs.1-5. Brazil as a Coffee Country, Rs.1-8. Cardamoms, Re.1. Ceylon Coffee Soils and Manures, Rs.1-9. All about Aloe and Ramie Fibre, Re.1. Estate Buildings, Rs.4-4. Coffee and Chicory, Rs.1-13. Coffee Cultivation in Ceylon, As.5. Tea Cultivation and Manufacture, As.5. Tea Cultivation in Ceylon, As.6. Tea at high elevations in Ceylon, As.3. Manuring of Tea Estates, As.8. To Economise Labour Supply, As.12. Planting, Pruning and Preparation of Tea, As.12. Salt for Agriculture, As.8. Cocoa, Cocaine and its Salt, Rs.2. On the Importance of Lining, As.4.

Apply "Observer Office,"

Colombo.

efinite periods of rest, such as the wintering previous to lossoming. Tea, on the other hand, is in no such need pparently, and growth all through the year should be stered as diligently as possible. Shade, by the way, favours trification, as also do abundance of mineral manures and certain quantity of organic débris.

To pursue this subject further would be to enter on a mplete disquisition on the cultivation of tea and coffee, hich would be quite foreign to our purpose. We have tempted in the above to arouse a practical interest in the mmonplaces of modern agricultural science, and trust we ave partially succeeded.

HINTS ON USING LIME.

Prof. Person, U.S.A., gives some valuable hints on this bject :—

"When soils are of an acid character, such crops as clover, alfalfa, cerne and certain other leguminous plants which under proper soil nditions have the power to utilize the nitrogen of the air existing in e soil are unable to make a satisfactory growth. Moderate applitions of water-slaked lime under such circumstances will prove ghly beneficial in sweetening such soils and promoting nitrification. ften injury results from the application of lime in a caustic state. hen applied in this form, particular care must be exercised to void excessive applications, even on soils where crops requiring a latively large lime nourishment are to be grown. Next to the ater-slaked, air-slaked lime is the most satisfactory form in which make lime applications. On thin, sandy soils deficient in lime, om 500 to 1,000 pounds per acre is the proper quantity to apply. n heavy soils these quantities should be increased about one-half. is generally best to make lime applications sometime in advance planting. Autumn applications are generally to be preferred. should be distributed with great uniformity and carefully plowed nd harrowed into the soil, otherwise its beneficial effects will be reatly retarded. On soils needing this material, about every four ears would be the proper interval for administering lime dressings soils. Lime should immediately after being applied be harrowed to the soil, otherwise it will likely cake, and this would detract om its good effects.

"It is a very easy matter to ascertain whether or not a soil ssesses acid properties. Soils that contain much carbonate of me are of an alkaline character (*i.e.*, directly opposite to acid). ch soils, of course, need no liming. But when a soil is disctly acid, as is often the case, particularly when muck soils, lditions of lime are always desirable. In order to determine acidity, very simple test will suffice. Employ a narrow strip of blue tmus paper, an inch and-a-half in length (to be had for a trifle at y apothecary shop) in conducting the test. A few ounces of the spected soil may be placed in a glass and made into paste with ater by stirring with a rod or stick. Allow the paste to stand for half-hour, and then with a knife blade separate the paste, and sert the strip of litmus paper and press the moist soil against it ith the blade, and allow the paper to remain in this position for out five minutes. Remove the paper and see if the end placed in e soil has changed from the original blue colour to red. If such a ange has occurred, it proves that the soil is acid, and that an plication of lime will usually prove beneficial. The end of the paper be inserted in the soil should not be handled, because often such andling will produce a red coloration of the litmus, and without roper precaution is exercised, this change might be ascribed to the il. See that the end of the paper applied to the soil is distinctly lue when inserted. Blue litmus will invariably be changed to red acid soils, and red litmus to blue by distinctly alkaline soils. intly alkaline soils will be neutral to test paper."

OUR OLD FRIEND THE PLANTAIN.

The first cargo of bananas sent from Costa Rica to the United ates left Limon in February of 1880, and consisted of 360 bunches, ich an enterprising planter picked from the plants growing between the rows of his coffee shrubs. The experiment succeeded so well that he concluded to let the coffee go and stick to banana culture exclusively. Four years later there were 350 banana estates in Costa Rica. Fruit companies had been established, steamers out expressly for the trade, and the annual output was averaging 500,000 bunches. Now there is scarcely a hamlet in the United States where bananas may not be found at all seasons of the year, most of which come from Central America and the West Indies.

Richard Villafranca, formerly the Costa Rican Consul in San Francisco, Cal., published some important bulletins on banana-growing a few years ago. He reckons from the average plantation of forty manzanas (about sixty-nine acres) and takes into consideration all the difficulties to be overcome, such as bad roads, scarcity of labour, high price of seed, etc., and also calculates that the planter has not money enough to buy his land and improve it, too, but has been compelled to borrow money by mortgage on his property at six per cent. a year. Given sixty-nine acres of wild land, the cost of cutting down the under-brush, clearing, burning and planting (with 270 suckers at $25 per hundred) and five weed-clearings would be in the neighbourhood of $3,070. Adding board and expenses of an experienced overseer at $30 per month and six per cent. interest for twelve months on the money invested, brings the cost of the first year up to $3,635. The second year fewer weed-clearings are needed, but 54,000 bunches of bananas are to be cut, a portable house is needed, ploughs and other agricultural implements, all of which together with the overseer's wages and interest at six per cent. may bring the total cost at the end of the second year up to $8,445.

Now for the other and more agreeable side of the question. Forty manzanas of land originally planted with 270 suckers now have at least 10,800 suckers, yielding at the lowest calculation five bunches each, or 54,000 bunches. The lowest price at which they were ever sold is fifty cents the bunch. Deducting all expenses, you have a net profit at the close of the second year of $15,556 or thereabouts. Do you know of any other sure business, short of the Klondyke, which yields equal returns?

In the foregoing statement the cost has been reckoned at the very highest and the sales at the lowest. If the land does not need to be cleared and burned before planting, the cost will be materially lessened, and if the planter does not need to borrow money, he will have no interest to pay. No count has been made, either of the sale of bananas between the tenth and the twenty-fourth months, or of other crops or fruits which he may in the meantime be raising. There is hardly any occupation in which a man is so certain to realize a decent income on a thousand dollars capital—always provided that his plantation is within easy reach of some port to which vessels come from New York, New Orleans or London. That is of prime importance. For the rest, he has merely to tickle the soil and it laughs with a harvest. He need not take any risks at all.

ON FOREIGN FLAVOURS IN TEA.

Their Origin and Prevention.

A troublesome peculiarity of tea is its susceptibility to taints variously described by tasters as "mintiness," "tarriness," "cheesiness," etc., each representing some flavour foreign to the natural flavour of tea. Manufacture, packing and transit have each in turn been charged with introducing the contamination, but it is more likely that particular taints have each their own stage in which the mischief is done. It may be assumed that the origin of any foreign flavour would yield to investigation, but unfortunately this is seldom possible, except in a very cursory fashion.

A very probable explanation of the flavour or taint known as "mintiness" is to be found in the presence of the jungly Ageratum, known as "Elami," in the latter half of the season on gardens well cultivated during the first half, but allowed "to rip" somewhat from August onwards, in order that all hands may be employed at plucking. This weed has a decidedly minty smell and taste. Of tall growing habit, it comes up through the bushes and is gathered only too readily by the nimble hands of the plucker intent on earning extra pice for weight over the appointed task. In many cases it would indeed be hard to avoid picking a tip or two of Elami along with the teak; but as baskets begin to fail in the bottoms, it is frequently gathered in large bunches to stuff a hole, which bunches are, of course, dumped down in the withering house with the tea leaf. A few fragments manufactured along with the tea will inevitably taint a large bulk with the unmistakable flavour of mint. Planters are

alert to prevent the mischief, but Elami leaf very much resembles tea leaf in the withered state, and where it is much in evidence on the garden, it is no wonder that it sometimes gets into the manufactured tea.

It used to be thought that the packing was chargeable, and learned explanations or theories have been put forward attempting to show that between tea perfectly dried and the lead lining of a tea chest a chemical action was induced, resulting in an objectionable "cheesy" taint. This explanation, however, was not convincing. That in some instances it should be the right one, the condition of the lining should have been the proof. Then the different woods used for packing cases came in for condemnation until hardly a single wood indigenous to any tea district in India was without objection. If there was any reality in the theory of scented wood, the faults set down to wooden chests should have disappeared on the introduction of metal, and we have not heard that such is the case. It would probably be more profitable to consider whether tea retaining more than a certain safe percentage of moisture—which Bamber shows to be astonishingly large—is not influenced unfavourably by the stewy heat in the hold of the ocean steamer.

Those interested only in the transport of tea are naturally unwilling to admit that any blame can be laid to their door, but it is becoming very clear to tea men that almost any taint may be contracted by tea on shipboard. Most people are happy when they can get a big shipping company to rail at, and one might unduly exaggerate the case, but the matter is one of easy proof and has, as a matter of fact, been proved over and over again.

So delicate and susceptible is tea that we are not at all certain that the taint known as "tarriness" may not arise from the tarpaulins used to cover the boxes in the first stage of their transport by cart or boat. When we consider that an invoice of tea may often be a couple of weeks on the way before it reaches proper shelter, exposed to rain and sun alternately, which makes the paulins strongly odoriferous of tar and oil outside, it is easy to conceive the condition of the hot oven underneath. It is satisfactory to note that the newer kinds of coverings are designed to avoid this salient fault of the old tarpaulin.

This liability to taint is undoubtedly a strong argument, if such were needed, against much handling of tea between the producer and the consumer. Each separate operation—warehousing, bulking, blending—necessarily increases the risk. We are familiar with reports of rough usage in London warehouses, which is said to more or less spoil some kinds of tea, and it is just possible that a none too nice attention to the delicacy of the article may be chargeable with the introduction of taints into at least samples of the bulk where none before existed. Our own factory system of packing before the advent of packing machinery was none too cleanly, and, we fear, it is yet the case on many gardens.

We are not quite satisfied that the flavour of hand-made China tea, preferred by an ever-decreasing section of tea-drinkers, does not owe something to simple animal taint. It is true that oxidation taking place simultaneously with the rolling process enhances the flavour of the product, but this is a question of degree only, the flavour of hand-rolled China being, it is said, of a different *kind*.

The custom of using resin in soldering the lead lining is probably to blame for the resinous taint, and should be altogether avoided.

Experience would warrant us in assuming that tea is most liable to contract deleterious taints of the "cheesy" class in the finished state, and this consideration led to the green wood and lead corrosion theories. Lead lining is an expensive item, and there seems no reason why paper of a suitable quality should not be substituted.* A great saving in cost and freight would probably be the first result of such a change; a thicker planking could be used, thus increasing the strength and efficiency of the package against rough handling, while we imagine the change would commend itself as a hygienic improvement.—COMMON SENSE in *Indian Gardening*.

[* Vegetable parchment is already in the market, but has never caught on properly.—ED., *Planting Opinion*.]

SEEDS.

THE vitality of seeds has lately engaged the attention of botanical physiologists. Experiments have been made at Kew and elsewhere for the purpose of determining what changes, if any, take place in seeds when placed under conditions of exceptionally low or high temperatures, and the results have been surprising. Seeds which had been subjected to a temperature of 190° C. (340° F. of frost) for nearly five days were uninjured, and germinated freely when sown. Similar results followed the boiling and roasting of certain seeds for half an hour or more. It has been recorded that seeds of poppy, sunflower, and parsley, when made perfectly dry, did not lose their vitality when placed in a temperature of 212° F. for forty-eight hours.

These experiments may lead to results of the greatest practical importance. They show that seeds are capable of supporting, without any loss of vitality, conditions which would be fatal not only to the plants which bore them, but to life in any form. Their condition under these extremes must be one of what is termed suspended animation; and if once this fact can be established, we may expect to find conditions in which seeds might retain their germinative power for any length of time. The germination of "Mummy-wheat" and of the Grecian refuse-seeds, which had lain dormant two or three thousand years, would then seem no longer impossibilities.

Seeds vary enormously in their provisions for retaining vitality, some perishing in a few weeks if kept at rest, whilst others have been known to grow after being kept for a century or more. What the change really is that takes place in a seed, and destroys its vegetative power, does not appear to be known. It is, therefore, to be hoped that the present enquiry will lead to the discovery of some means by which we can keep seeds of all kinds healthy for much longer periods than has hitherto been possible. With our present methods for the treatment and transport of seeds, failure is often experienced. Experiments might be made on such seeds as soon perish under ordinary conditions by keeping them in a frozen condition for a lengthened period, and then sowing them. The experiments already made prove that some seeds, at any rate, were uninjured by extremes of temperature such as they never experience in a state of Nature. As an example of how useful such a discovery would be, we may cite the recent failure of a large importation of seeds of a rubber-tree intended for distribution. It is possible that the refrigerator may be turned to account by the seed-merchant with results as satisfactery as in the case of the meat and fruit merchants.

Much may, however, be done even under present methods by the grower, the harvester or collector, and packer to ensure a longer duration of seed vitality. When seeds are intended to remain dormant for a time, they should be collected only when thoroughly ripe. If known to perish soon, they should be kept in soil or some similar medium. Most kinds of seeds, however, are safest when stored in canvas bags or paper packets, and kept in a dry place of uniform medium temperature. The hermetically-sealed method often proves disastrous.

The longevity of seeds cannot be ascertained by an examination of their shells or structure generally. Seeds may look good, and when sown fail to germinate; whilst, on the other hand, seeds which are shrivelled and apparently incapable of germinating sometimes germinate readily.

The treatment of old seeds whose germinative powers have been weakened from some cause requires careful consideration. As a rule, seeds with hard or tough leathery shells are less liable to perish easily than those with soft or thin papery shells. Every seed has stored up within itself all the materials necessary for the development of the embryo when placed under suitable conditions, but sometimes it is enclosed in a shell so impervious to heat and moisture that it remains unquickened for a long time, and, in some cases, it is unable to germinate.

The seeds of Nelumbium when once dry will lie dormant for several months, even when placed in warm water, but if the shell be cracked, or filed through, germination begins at once. Other hard-shelled seeds behave in the same way, and they have been known to lie unaffected by either heat or moisture for several years until released, as it were, by filing or cracking their shells. Immersion in

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Grass Knives, socket handle, steel ... per doz.	...	12	12	0
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Handles, Pickaxe, 3 ft. long (English Ash) ... each	...	0	12	0
Do. 30″ long 3¾″ circ. (do) ... „	...	0	6	0
Do. 16″ „ 3″ „ (do) ... „	...	0	4	0
Do. Digging Fork ... ... „	...	0	14	0
Lining Ropes, abt. 250 feet ... ... „	...	8	12	0
Mamooties, Steel 10″x 8″ or 9″x 7″ abt. 4 lbs. wt. per doz.	...	12	12	0
Do. Iron 10½ x 8½ or 9½ x 8 abt. 4 lbs. wt. „	...	7	8	0
Quintanies, Steel 15″ × 6,″ 5½ lbs. weight ... „	...	18	0	0
Do. 9½″ x 5,″ 3¼ „ „ ... „	...			
Manure Pans, (Galvd.) 7″ deep x 18″ top x 10″ bottom „	...	23	4	0
Pitting Bars (Alavangoes), well-steeled points, 3″ spade end, 45″ long, 9 lbs. wt. „	...	16	8	0
Pruning Knives, English make, best steel, 4″ blade „	...	9	0	0
Do. Saws, do. do. 14″ „	...	18	0	0
Seamless Bags (for coffee transport to coast) 42″ x 20″ „	...	9	12	0
Shovels, round nose, T handle ... ... „	...	12	12	0
Tea Transplanting Spades, steel, sharp edge ... each	...			
Tea Sieves, brass No. 6, 8, 9, 10, 12 mesh „	...	6	0	0
Do. do. bottoms do. „	...	3	8	0

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„ { 72 „ 65″ x 19″ „ sides / 144 „ 14″ x 14″ „ tops and bottoms }	„ ...	30	0	0
Solder (Sticks) per case of 1 cwt. Rs. 50, or per lb.	...	0	8	0
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Do. Lead (*abt. 50 to the lb.*) ... ... „	...	0	6	0
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Wire Nails, French.

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Rs.	13/12	11/8	11/	10/8	10/	9/8
℔ pound annas	2¾	2½	2¼	2¼	2	1¾
Nails ℔ lb. (*abt.*)	400	200	160	100	80	35

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℔ 1 cwt. keg	1″	1½″	2″	2½″	3″	4″
Rs.	14/	12/	11/	10/8	10/	9/8
℔ pound annas	2¾	2½	2¼	2¼	2	1¾
Nails ℔ lb. (*abt.*)	500	290	160	110	75	40

ASPHALTE ... ... per ton	...	69	0	0
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Coca, small leaved kind for low elevations, Rs.4 per 100; Rs.20 per 1,000; large leaved kind for high elevations, Rs.5 per 100; Rs.30 per 1,000.

Giant Kew Pine Apple, Rs.10 per dozen suckers; 5 dozens for Rs.40.

Pepper, best variety, Rs.10 for 1,000; new crop now ripening, 5,000 for Rs.40.

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oiling water for a few minutes by holding the pot and soil containing the seeds in a bucket, or, if large, removing them from the oil and after soaking in hot water resowing in fresh soil, will often asten germination.

As a general rule, a higher temperature than that under which the arent plant thrives is preferable for all seeds, and the older they re the higher, in reason, should be the temperature. Heat quickens he embryo into activity and softens the wrappers of the seed. Some cultivators are of opinion that the seeds of alpine plants and ndeed of all plants give better results when treated after Nature's lan in regard to heat and moisture. This would hold good were it ot that the seed is often made dry, hard or tough by the treatment necessarily undergoes before it can be sown, and to remedy this an xcess of heat above the normal is necessary. Frost is said to have he same effect on the seed-wrapper as has heat, but speaking from xperience with many kinds of seeds of varying ages, I should say hat old, weak seeds of doubtful vitality are much more likely to germinate under the stimulating influence of a high temperature han otherwise. Seeds of Primula imperials from a very great levation in Java germinated at Kew only when sown in a tropical emperature; and the same is true of Ranunculus Lyalli from the nowclad mountains of New Zealand. The seeds of the hybrid Disas, raised at Kew, were sown in a temperature which would soon kill the full-grown plants. Expert growers of Persian Cyclamen, Chinese Primrose, tuberous Begonia, and many other cool-house plants, sow the seeds in a tropical temperature. Numerous instances of this character might be given. Should any fungoid mould develop about old seeds after sowing, the soil should be saturated with a weak solution of permanganate of potash; or if the seeds are large enough to handle, separate the bad from the good, bathe the latter in the permanganate of potash, and resow in fresh soil.

It is well to err on the side of waiting when dealing with old seeds, as I have known such to remain dormant for two years from no apparent cause, and then to germinate.—W.W. in *Gardeners' Chronicle.*

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LIBERIAN IN THE STRAITS.

(*Continued from page* 173.)

Pulping, washing, drying, peeling, sorting.

LET us imagine that our coffee is picked and received in the store. It takes ten pikuls of cherry to make one pikul of clean coffee, representing a value of $40, and it takes a long time and has to pass through many manipulations and evolutions before the planter gets in possession of his money, and after all, a good many people may wonder that we get so very little for so much labour and such great risk.

Before we can pulp our coffee we must have a store and pulping-shed. Here, again, is a difficulty. If a planter has the money, or if he can raise the necessary funds, I would advise him to put up at once a decent store on brick pillars and covered with tiles or corrugated iron, large enough to admit his crop being cured there for many years to come. I would advise him to get at once a good oil engine, not less than 16 H.P., to enable him to drive peelers, elevators, pulpers, drying fans, pumps and whatever else he may ultimately require. An engine of 16 H.P. does not cost much more than one of eight, and you get double the amount of work out of it. If you put up a temporary store and temporary pulpers, you will have to keep on altering, adding, improving, changing, until you get sick of it. Finally, you will have to put up a good store after all and get all the machinery. If you have capital, don't waste your time and money in experimenting with temporary sheds and temporary arrangements and inferior machinery. You lose much more that way than you might possibly save in interest on your capital.

But there may be another objection—you may not have the money, and that is a very good reason for not spending it.

In that case, of course, you have to make the best of it; try to sell your cherry to a neighbour; this in such a case would be the most satisfactory thing to do; but should this be impossible, then raise an atap shed for a few dollars and buy one of Walkers' small disc hand-pulpers for £18; you will find that you will be able to do all your pulping until such time as you can afford to buy a larger one and to build a proper store; or, if even this is too expensive, buy an ordinary crusher and a sieve and get through as well as you can. You will always be able to find a market for coffee in parchment, as I shall mention later on. But, whatever you do, don't dry your cherry in the skin. This is called the native style of curing. It is a most difficult task to cure dry cherry, and coffee obtained from dry cherry never fetches the same high price in the market as coffee pulped and cured in the ordinary way, although, as regards flavour and quality, I have no doubt the coffee cured in the native fashion is far superior; but it does not look so nice and even, and also has not the same bright appearance as the former, and appearance must be, or rather is, paid for in coffee as well as in everything else.

I cannot of course give much advice about the store; this depends entirely on the funds and capital at the planter's disposal; but I should say, whatever you do, do it so that you can utilise what you have done in your future improvements. A store generally consists of a platform, three or four receiving cisterns and one washing or tail cistern.

I would not advise less than four receiving cisterns, and, besides the tail cistern, another one to catch the pulp, which always contains a certain amount of coffee, and it will therefore pay the planter to

The Wynaad and the Planting Industry of Southern India, by FRANCIS FORD. Re. 1.

The Planting Directory of South India. Re.1-8.

Tea Planting from Seed to Cup in Tamil, with English Translation. Re.1.

Sketch History of the Planting History of Wynaad, by the late ADOLPHUS ARTHUR WRIGHT. Re.1-8.

Report of Observations of Injurious Insects and Common Crop Pests during the year 1883, with Methods of Prevention and Remedy by Miss ELEANOR A. ORMEROD, F.R.Met.Soc., &c. Re.1-8.

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wash the pulp once more carefully before allowing it to be used for manuring purposes.

My reason for advising four receiving cisterns is that Liberian coffee after being pulped should ferment for three days before being washed; it requires therefore four tanks if you want to work continually. The fourth day you pulp into cistern No. 4, whilst you wash the coffee in tank No. 1, the fifth day you pulp into No. 1 and wash the coffee in No. 2, and so on. To show better what I mean, I will give later on a small sketch and plan of an ordinary coffee store and pulping shed.

Below is your pulping-shed and above is the store. A building like this will cost about $1,000 to $2,000; it all depends of course on what kind of material you use and whether you cover the building with atap or corrugated iron, and whether you use jungle wood or merbau square beams, etc. You can spend five or six thousand dollars for the same store and more even; but for one to two thousand dollars, you should be able to get a good building, sufficiently strong to stand all the pressure that is ever likely to be put on it.

The next item is the pulping. There are many different kinds of pulpers, but the best pulper for Liberian coffee which I know, and which I would therefore recommend to every planter, is Walkers' disc pulper. A Walkers' small hand pulper will pulp about ten boxes of cherry in an hour, and eight men in the store are sufficient to do all the work. Sixty boxes is a fair day's task for the men to pulp, as it must be taken into consideration that it is very hard work. If you have a lot of coffee to pulp, keep two gangs of coolies, and relieve them after they have finished 50 or 60 boxes.

To avoid discolouration, be careful not to mix your parchment with any more pulp than you can help, and it must be kept in mind that at no future period will it be so easy to separate the skin from the parchment as when pulping or washing. Parchment when it is freshly pulped is of a clean white colour, and it will keep so as long as it is kept in flowing water; if it is stored in a dry place and mixed with pulp (that is, the flesh or skin of the berry), it will turn brownish red. A good strong supply of water is required to pulp Liberian coffee.

The day's pulping being finished, cover up the parchment and leave it alone for three nights. During this time it will ferment. I don't think that this is done with any idea of improving or affecting the quality, but simply to get rid of the saccharine matter.

When the coffee is pulped, it is divided in skin and parchment; skin is the pulp which has been removed from the berry and parchment is the part of the berry that remains; this parchment is covered with a thick and sweet coat of flesh, which sticks to it and cannot be got rid of until it has been exposed to a process of fermentation.

This takes from two to three days, and the parchment during this period gets so hot that you cannot bear your hand in it for any length of time. When you can easily squeeze the flesh off the parchment, the fermentation is sufficient and the next thing to be done is washing. For this purpose the parchment is uncovered and spread about in a cistern and a number of coolies tread the flesh off. This being thoroughly done, clean water is turned on and renewed as often as necessary, until the saccharine matter is quite washed away. You can hear it distinctly when this is the case, as that parchment when raked up sounds like wood being rubbed against wood, whilst so long as the saccharine matter is still on it it does not make that noise.

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TERMS MODERATE.

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Correspondence and matter for publication to be sent to Editor, this paper, Coonoor.

When the parchment is thoroughly washed it is measured aga into boxes of 18″ × 18″, and you will find that 100 boxes of pulp cherry will give an outturn of about 24 boxes of wet parchmer The wet parchment should be taken straight from the washi cistern to the barbecue. If this is done it will keep a white colou otherwise it will get darker. The colour of the parchment does n in any way affect the quality of the coffee, but yet planters like turn out as white and clean a sample of parchment as possible; ve often, however, this whiteness is obtained at the expense of t quality of the coffee, owing to leaving the parchment after it washed in flowing waterf or some days more.

A barbecue is a place used for drying the coffee; it is general made of bricks and covered with cement. The parchment, spre out on this, is exposed to the sun, and every few hours a cooly tur it over, so that the lower beans also get exposed; this is done simp by the cooly walking through the parchment and stirring it with his feet. It takes at least three days to dry parchme thoroughly.

To see if the parchment is sufficiently dry, take off the skin a bite on the bean; if the bean is stone hard so that your teeth w not make any impression, you may consider the parchment sufficiently dry to be peeled. But before peeling it you aga measure, and you will find that you have lost about 20% in measu ment, or, to make myself quite clear, 100 boxes wet parchment w measure when thoroughly dried only about 80 boxes. On lar estates, where there is a lot of coffee, drying or hot houses take t place of barbecues.

Needless to say this is much easier and quicker than drying exposure to the sun. There are, of course, several varieties of dryi houses; but the simplest and most convenient one, to my mi consists of a perforated iron platform on which the parchment spread out to dry, whilst hot air from a furnace underneath forced by a fan right through the parchment. This system dr the parchment in about 20 hours; it has the advantage of maki the planter independent of weather, and it also makes the peeli so much easier afterwards.

For peeling, as well as for drying in a hot-air house, you requ some more effective power than manual labour. If you have buil good store, you can for some time do with a Walkers' hand-pulpe but when it comes to pulping 200 boxes and more of cherry a d your coolies will not be able to do it and you must have an engi The store has been built for extension and for the erection of machine

If you have no engine, you can buy a small hand-peeler (Smou patent, manufactured by Messrs. Gordon and Co., London, is rec nised as having given great satisfaction); but a hand-peeler w never turn out the same amount of work as one driven by machine and it is much too slow, and I would not recommend anybody to in for it; I would sooner ship my parchment to London and have peeled there. The additional freight does not amount to much, a you may depend upon getting your coffee cured in London in a m conscientious and efficient way at a very small and moderate char per cwt.

(*To be continued.*)

MARKET REPORT.

COFFEE.

Messrs. R. J. Rouse & Co.'s Weekly Coffee Report (April 15, 1898) says Sales were resumed yesterday after a week's interval, and the hea supplies brought forward met a steady demand at fully previous values

About 1,100 bags East India were offered and attracted good competiti fine Home Trade marks realising very firm rates, whilst the medi descriptions sold steadily.

Good prices were obtained for the large quantities of Central Americ catalogued, fine colory Costa Rica, in some cases, being readily dispos of at an advance of 1/- to 2/-.

The Terme market has been quiet owing to the Holidays with only small business passing; quotations at the close show a decline of 6d. si our last.

PLANTING OPINION.

A WEEKLY JOURNAL

WRITTEN BY PLANTERS FOR PLANTERS.

VOL. III.] COONOOR, SATURDAY, MAY 14, 1898. [No. 19.

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SUBSCRIPTION.—Advance Rates: Yearly, Fifteen Rupees; Half-yearly, Eight Rupees; Quarterly, Five Rupees, and Monthly, Two Rupees, including postage. Single Copies, Eight Annas.

ADVERTISEMENTS.—From the 1st October, 1897, the charge for line advertisements will be: 4 as. per line for the first, 3 as. for the second, and 2 as. for the third and succeeding insertions. Five-line advertisements from Subscribers will be inserted for three issues for one rupee; non-Subscribers will be charged two rupees.

DOMESTIC OCCURRENCE.—The fee for inserting a domestic occurrence will be *One Rupee* for each insertion, payable in advance.

N.B.—Remittances should be sent to the Manager, "Planting Opinion," 11/12, Second Line Beach, Madras.

IMPORTANT NOTICE.

The Business Offices of this paper having now been removed to Madras, all remittances should be made payable to the Manager of *Planting Opinion*, 11 and 12, Second Line Beach, Madras, who will also attend to all advertisements, &c.

Letters to the Editor should be addressed to Coonoor, as usual.

SEASON REPORTS.

NOTICE.

TO OUR SEASON REPORTERS.

Please post your next reports to reach Madras on Friday, the 20th May, 1898.

Season Reports should be sent to the Printers, Messrs. Addison & Co., direct, and not to *Planting Opinion* Office.

Nilgiris.

Coonoor, 11*th May*.—South-west winds and rain again in full force, though as usual here a great deal more of wind than rain. The coffee blossom promises to be a great success all round, though some prognosticate that the eventual "setting" will be by no means as successful as it seems to be now. Personally I incline to the more hopeful view. Tea is showing scant signs of improvement in yield, and hope is fixed to what autumn may bring forth. Influenza about, and health generally very indifferent.

Kullakamby, 11*th May*.—*Weather*.—Alternate spells and bright sunshine and cloudy weather; one slight shower last week, but more rain wanted. *Crops*.—Good blossom out, and most of it well set. *General Health*.—Fever still very prevalent. *Labor*.—Paid off on lower estates.

IMPORTANT INSECTICIDES.

The use of Insecticides has been much debated by South Indian planters of late years, and although no very great progress has been made a few men, at least, are trying to push the matter forward. Our American cousins have

already gone ahead, and we now proceed to cite some of their conclusions, in the hope that, after making allowances for differences of climate, &c., some of our readers may find them useful. The following extracts are from a bulletin prepared for the U. S. Department of Agriculture, by Mr. C. L. Marlatt, First Assistant Entomologist. As this gentleman remarks, "for the intelligent and practical employment of insecticide it is necessary to comprehend the nature and method of injury commonly due to insects." The great mass of the harm to growing plants from the attacks of insects falls, he observes, under two different heads based on distinct principles of food economy of insects, viz., whether they are biting (mandibulate) or sucking haustellate), each group involving a special system of treatment. For biting or gnawing insects, arsenicals furnish the surest and simplest remedy, unless where the parts treated are to be shortly used for the food of other animals or of man. For sucking insects, it is necessary to use substances which will act externally on the bodies of the insects, either as a caustic or to smother or stifle them by closing their breathing pores, or to fill the air about them with poisonous fumes. Of value also as repellants are various deterrent or obnoxious substances. Besides the above two groups, however, there are (1) the internal feeders, such as wood, bark and stem borers, species living within fruits, &c.; (2) household pests, and (3) animal parasites.

ARSENICALS.

Mr. Marlatt sets arsenicals in the following order in point of solubility and corresponding danger of scalding foliage—the least soluble first:—Arsenite of lead, Paris green, Scheele's green, and London purple. He then proceeds to discuss

HOW TO APPLY ARSENICALS,

and says:—There are three principal methods of applying arsenicals. The wet method, which consists in using these poisons in water in the form of spray, is the standard means, secures uniform results at least expense, and is the only practical method of protecting fruit and shade trees. The dry application of these poisons in the form of a powder, which is dusted over plants, is more popular as a means against the cotton worm in the South, where the rapidity of treatment possible by this method and its cheapness give it a value against this insect in the essentials. This method is also feasible for any low-growing crop, such as the potato, young cabbages, or other plants not to be immediately employed as food. The third method consists in the use of the arsenicals in the form of poisoned baits, and is particularly available for such insects as cut worms, wire worms, and locusts in local invasions.

The Wet Method.—Either Paris green, Scheele's green, or London purple—may be used at the rate of 1 pound to 100 to 250 gallons of water, or 1 ounce to 6 to 15 gallons. The stronger mixtures are for such vigorous foliage as that of the potato for the Colorado potato-beetle, and the greater dilutions for the more tender foliage of the peach or plum. An average of 1 pound to 150 gallons of water is a good strength for general purposes. The poison should be first made into a thin paste in a small quantity of water and powdered or quick lime added in amount equal to the poison used to take up the f arsenic and remove or lessen the danger of scalding. An excess of li will do no injury. The poisons thus mixed should be strained into t spray tank or reservoir, care being taken that all the poison is p verized and washed through the meshes of the strainer. The use the lime is especially desirable in the case of the peach and plum, t foliage of which, particularly the former, is very tender and easi scalded. To the stronger foliage of the apple and most shade tre Paris green may be applied without danger at the strength of 1 pou to 150 gallons of water; with London purple it is always better to u the lime. The arsenite of lead is prepared by carefully pulverizi and combining, in a small quantity of water, the weight of the t ingredients needed at the strength decided upon as indicated by t capacity of the spray tank. The chemical combination is effected i few minutes, and the resulting milky mixture is ready for the ta Lime is not needed with this arsenical. At slightly greater exper this arsenical can be procured already combined as a dry powd white or colored with a dye. If it be desirable to apply a fungicide the same time, as on the apple for the codling moth and the ap scab fungus, the Bordeaux mixture may be used instead of wat adding the arsenical to it at the same rate per gallon as when wa is used. The lime in this fungicide neutralizes any excess of f arsenic and makes it an excellent medium for the arsenical, removi as it does, all liability of scalding the foliage and enabling application of the arsenical, if necessary, eight or ten times strong as it could be employed with water alone. The arsenic cannot be safely used with most other fungicides, such as t sulphate of copper, eau celeste or iron chloride solution, the scaldi effects of these being greatly intensified in the mixture.

The Dry Method.—The following description applies to the pole a bag duster commonly used against the cotton worm: A pole 5 to 8 fe long and about 2 inches in diameter is taken, and a three-fourt inch hole bored through it within 6 inches of each end. Near ea end is securely tacked a bag of "8 ounce Osnaburg cloth," 1 fo wide and 18 inches to 2 feet long, so that the powdered poison m be introduced into the bags with a funnel through the holes at t ends of the pole. The bags are filled with undiluted Paris gree which is generally preferred to London purple on account of quicker action, and the apparatus is carried on horse or mule ba through the cotton fields, dusting two or four rows at once. T shaking induced by the motion of the animal going at a bri walk or at a trot is sufficient to dust the plants thoroughly, or t pole may be jarred by hand. The application is preferably made early morning or late evening, when the dew is on, to cause t poison to adhere better to the foliage. From 1 to 2 pounds are requir to the acre, and from 10 to 20 acres are covered in a day. T occurrence of heavy rains may necessitate a second application, b frequently one will suffice. This simple apparatus, on account of effectiveness and cheapness, is employed throughout the cotton b to the general exclusion of more complicated and expensive mac nery. With the patented air blast machines for the dry distribution poisons, arsenicals are diluted with ten parts of flour, lime, or grou gypsum, and from 60 to 75 acres may be covered in a day by usi relays of men and teams. Greater uniformity is secured with the machines in distribution of the poisons, but their cost (from $30 $60) prevents their general use. The planter should have a goo supply of poison on hand, apparatus for its application prepared advance, since when the worm puts in an appearance its progress very rapid, and a delay of a single day may result in materi damage to the crop. If small garden patches are dusted wi poison by this or similar means from bags or with hand bellow it is advisable always to dilute the poison with ten parts flour, or preferably lime, and for application to vegetabl which will ultimately be used for food, as the cabbage, 1 oun of the poison should be mixed with 6 pounds of flour 10 of lime, and dusted merely enough to show evenly ov the surface.

As poisoned bait.—It is not always advisable or effective to app arsenicals directly to the plants, and this is particularly true in t case of the attacks of the grasshopper and of the various cut worn and wire worms. In such cases the use of poisoned bait has prov very satisfactory. For locusts, take 1 part by weight of whi arsenic, 1 of sugar, and 6 of bran, to which add water to make a w mash, place a tablespoonful of this at the base of each tree or vine, apply a line of baits just ahead of the advancing army of gras hoppers, placing a tablespoonful of the mash every 6 or 8 feet, a following up with another line behind the first. For baiting c

orms and wire worms, distribute poisoned green, succulent vegetaon, such as freshly cut clover, in small bunches about in the infested lds, dip the bait in a very strong arsenical solution, and protect om drying by covering with boards or stones. Renew the bait as ten as it becomes dry, or every three to five days. The bran-arsenic it will also answer for cut worms.

TEA PESTS AND BLIGHTS.

Second Notice.

In a recent issue we had occasion to draw prominent attention to Dr. Watt's valuable and extremely suggestive ork on the pests and blights of the tea-plant. It was rearked that the great principle that underlay most of his ggestions for remedial treatment was to show how to reove the very conditions that favour, may almost invite, sease. It is our present purpose to examine in some tail the various methods proposed, confessing from the st that we are strongly biassed in their favour.

nprovement of seed. In our former article we noticed the deserved prominence given to e improvement of seed, the importance of which in relaon to coffee has many times been forcibly set forth in these ges. Were it not for that curse of Anglo-India, the ant of continuity in experimental work, it is highly proble that pedigree tea and coffee seed capable of producing ants of phenomenal yield and extreme hardiness, would among the commonplaces of the Indian planting industry. ut as no one experimenter can hope to reap the full or en a just share of reward of his labours in this direction, e subject has been most unwisely relegated outside the here of practical planting.

ltivation. In examining the current methods of cultivating the soil in Assam, r. Watt is by no means convinced of the alleged ultraerfection arrived at by constant hoeing or digging the soil, as to keep the surface of the land absolutely free of eeds. Besides the weed question, the tillage of heavy soils n be very easily carried to excess, inasmuch as the soil rticles already very fine in clay are rendered smaller d smaller by constant stirring. This results in the soil beming more compact and more impervious to the free passge of air and moisture. Further the practice also tends oxidise too quickly what organic matter there is in the il. In writing, however, of the advantages rendered by a oderate growth of weeds to the soil, Dr. Watt falls into ror when he supposes weeds tend to keep the soil moist the hot weather. The exact contrary is the case. Much ould be done, recommends the learned author, to enurage leguminous weeds in the tea, as their manurial alue would be of course immense. The marked beneficial fect on tea produced by the *Sa*, a leguminous tree, is well cognized throughout Assam, and the only objection to its eneral adoption lies in its shade, which of course seriously ffects the quality at least of the flush that grows under it.

rainage. From cultivation to drainage is a natural step in reality, though the timate connection between the two branches of work is rely recognised. We might, indeed, go further and say at really efficient drainage, *is* cultivation. For the generally accepted idea of drainage, *i.e.*, to relieve soil of its superfluous moisture is by no means correct. The real objects that should be aimed at are to increase the depth to which water will penetrate, thus deepening the arable soil and improving its condition, the removal of excess of moisture being one of the incidential results. For water, especially rain water, is one of the most potent of the solvent agents of nature. It attacks and renders soluble the various minerals in the soil. And if given a free passage to some underground exit, it leaves channels by which air freely enters and completes the solvent and sweetening work begun by running water. Heavy soils, especially if flat, almost always need artificial subsoil drainage, but light sandy soils are porous enough in themselves, and drainage in their case may well be neglected. Save in so far that the stoppage of surface wash is of course an essential, whatever the nature of the soil. Many planters imagine that perfect drainage may in dry weather tend to dry up the soil unduly. Subsoil drainage, however, can only remove excessive moisture, and in doing so increases the depth of soil which can absorb moisture, so that it actually allows the the soil to retain, in times of drought, more moisture than were otherwise possible. This seeming paradox is easily understood, when it is remembered that if a soil is pervious to water to a small depth only, the excess must run off the surface. Subsoil drainage, by allowing the water to penetrate to a much greater depth, enables it to absorb almost all the water that falls on it, passing out the excess below the surface, thus stopping surface flow and wash automatically.

The main object of all drainage is, as may be guessed from the above, to induce every drop of water that falls on the soil, to penetrate into it to the greatest possible depth. Tested by this principle, it is evident that the drainage systems current on almost every Indian and Ceylon plantations are absolutely wrong. The usual drain is a shallow catch drain to arrest the flow of surface water. Good subsoil drainage would have prevented any such surface flow from taking place at all, excess of moisture should only escape from the soil after having percolated through it. Open drains are perhaps the only ones practicable on most estates, as the cost of tile drainage is excessive, running into many hundreds of rupees per acre. Dr. Watt, while admitting the tremendous cost of closed drains advocated, frankly says that he has not attempted to do more than suggest improvements on the present methods. He states that the economic side of the question has been left for practical men to deal with. Not an excellent point of view this, as impracticable remedies are surely of no importance to business men who have to deal with stern facts. It would have been far more to the purpose had Dr. Watt devoted more attention to the only practicable, *i.e.*, open plantation, drainage, with a view to its improvement. His suggestion in this direction only amount to the following: drains should be deep and narrow, and that their sides should be banked up to stop surface flow and encourage percolation. We would ourselves suggest as a great improvement on the present methods of catch drains, trenches and water-holes, a carefully worked out combination of all three. Main drains, deep and as narrow as practicable, should follow the course of every nullah or water-course, and additional ones dug when the natural escapes are insufficient. Tea, coffee or shade

trees should be planted close enough to protect these drains from being unduly exposed to the air. The rows of trees should be so planted that drains can be dug between the rows at a good gradient towards the main channels, without necessitating the removal of any trees, catch or surface drains should only be used to prevent the flow from uncultivated land flowing on to the cultivation. To replace the cross or catch drains in the cultivation itself, we would advocate a complete chain system of water-holes, so dug as to allow free percolation from one to another until the excess finally escaped in the doom or main drain. We are, of course, writing with especial reference to the steep lands of South Indian plantations. On flat land such a system would be impossible.

On stoney land, a species of subsoil drains would be easily worked at a very small outlay. Deep narrow drains should be dug at frequent intervals, the nearer the better. They should be filled in with rough stone, the larger pieces of course at the bottom, till within say a foot of the surface, when they might be covered over with earth. Where stones are insufficient, loppings of shade trees, *if free from blight*, might be used instead, and gradually filled in as the seasons pass. Burying vegetable matter, especially prunings from coffee or tea is, however, subject to grave objection, as many plant diseases rest in a quiescant state in dead wood, subsequently emerging into active life and attacking the living trees around. But where prunings and loppings are left to decay on the surface, they might well be used as suggested. They should, however, preferably be removed and burned in their green state.

To conclude, we may mention that the distance apart of lateral or feeding drains is determined by the slope of the land, the character of the soil, and the depth of the drains. Mr. Dempurgh's tables gives the depth of drains in clay soils at $2\frac{1}{2}$ to $2\frac{3}{4}$ feet, 15 to 21 feet apart. For medium soils 3 to $3\frac{1}{4}$ feet deep, and 21 to 30 feet apart. For porous soils $3\frac{1}{2}$ to $4\frac{1}{2}$ feet deep and 33 to 60 feet apart. These tables are, we fancy, for fairly level land. We presume that more frequent drains would be required were the land steep.

NOTES.

Jolted out of the ruts! It was not to be expected that the tea planters of Upper India would let pass without remark Dr. Watt's strong criticisms on the modes of latter-day tea cultivation. There is no doubt that Dr. Watt, as we have ourselves pointed out, has made certain blunders and fallen into errors not a few. Annoyed with his assumption of superior knowledge, and the somewhat radical changes he advocates in cultivation and pruning, a writer in *Capital* attempts, though unsuccessfully, to sneer down "Tea Pests and Blights" *in toto*.

South Indian Teas. Messrs. Arbuthnot & Co's monthly report, dated London, 15th April, says :—

"Supplies, were heavier than of late and the public sales included 5,849 packages sold at $6\frac{1}{8}$ per lb. average, compared with 1,500 packages at $6\frac{1}{2}$ per lb. in February. The majority were of ordinary character, and having to compete with an abundance of similar description from both North India and Ceylon prices in most cases ruled easily. Fairly useful Invoices were, however, sold from several estates, and it is to be hoped that climatic influences may soon be again favourable to the general manufacture of teas with good col liquor, such as used to be sent from Travancore and for flavo Invoices from the Nilgiris and South Wynaad."

"The Coffee Planter's Manual." We have received for review copy of the fourth edition of wh has been long favourably known Brown's Coffee Manual, edited and brought up to d by Mr. J. Ferguson, the Editor of the *Ceylon Obser* and *Tropical Agriculturist*. The whole of the last editi (1894) has been re-arranged, and a good deal of n matter has been added, referring more especially to Liber coffee. Mr. Ferguson has also included useful pap containing summaries of discussions on manuring, chemi analyses of soils, agricultural experiments bearing on cof culture, the enemies of coffee, estimates of crops, and oth practical subjects of interest to the coffee planter of t present day. But why does Mr. Ferguson apply so un-ag cultural a term to forking as "puncturing the earth"?!

The future trade in Indian plantains. We have given a good deal attention to the share Indian plant might secure of the dried bana trade, but have rather discouraged the idea of creating green fruit export. *Indian Gardening*, however, in comm with the *Madras Times*, sees great possibilities in the gre fruit trade, and alleges that there are Indian varieties of t banana, or plantain, that are unequalled for flavour a appearance in all the world. The great difficulty of cou lies in the cold storage that would be essential, and t present inadequate accommodation in this respect in t Indian liners.

Considering the very great advantage that would res to India as a whole, from the development of an exp trade in fruit, it is not unnatural to suggest that Gover ment might well depute some of its hybrid Land Records a Agriculture officials to conduct exhaustive experiments initiating the trade.

London Market. The *P. M. Review*, of 16th ultim says :—*Coffee.*—During the holida there have been some very heavy arrivals of Costa Rica a other Central American descriptions, and in consequen the catalogues on Thursday and Friday, when the auctio were resumed, contained a larger quantity than at a previous time this year. The demand showed a decid improvement, particularly for home trade kinds, and pric have steadily advanced. Medium and fine Costa Ri are from 2*s*. to 3*s*. dearer, and the lower grades have al sold at rather higher rates. Of the small quantity of Ea India offered Mysore fetched full prices, the bold being some cases dearer. Guatemala has been quiet, but valu show little change. In the terminal market quotations ha slightly eased off, varying from 6*d*. to 9*d*. below those of week ago, although some of the foreign markets, notab that in New York, are decidedly dearer.

FOR SALE.—Hand Camera ($\frac{1}{4}$ plate) by Robinson, Dubli in first-class condition with 12 slides for plates—also son $2\frac{1}{2}$ dozen plates (more or less), 6 developing dishes, 3 optim printing frames, and large assortment of photographic chemica Price on estate Rs.75. No offers. Apply—M. W. LITTO Shaniwarsanté, N. Coorg.

LONDON COFFEE RETURNS.

—	HOME CONSUMPTION.		EXPORT.		STOCK.	
	1898	1897	1898	1897	1898	1897
For the week ended April 9, 1898.	Tons. 319	Tons. 316	Tons. 509	Tons. 494	Tons. 13,249	Tons. 11,832
For the 14 weeks ended April 9, 1898.	4,112	3,917	5,945	4,183	—	—

Indian Teas.—The market has been practically closed nce our last issue as no public sales have been held, while ransactions by private contract have been on a moderate cale. The demand, however, is steady, and a fairly good usiness has passed in most grades, and it is probable that here will now be a better inquiry. The deliveries are im-roving, while the trade have bought sparingly for some ime past, thus reducing their stocks in bond, which it will e necessary to replenish before long. For the opening ales on Monday there are 22,537 packages catalogued, ost of the teas being of inferior quality, the proportion of he finest kind being exceptionally small. For the latter, rm prices are likely to prevail, while the former will robably not be affected, as the supply for some time to ome will no doubt be ample to meet any increase in the emand. Medium descriptions are fairly represented, and hose giving a good infusion are sure to be well competed for t prices quite equal to those prior to Easter. Telegrams rom Calcutta give the total yield available for this market s 234,000,000 lbs., as compared with 131,770,000 lbs. last eason, while nothing definite is known as to the probable esults of the coming crop.

LETTERS TO THE EDITOR.

WIRE SHOOTS.

SIR,—I want to know how to work a single wire rope, aided by a paralled cotton rope, so as to bring *up* firewood, tea-leaf, etc., from the bottom of my estate to the factory. The down oad would of course be manure, etc., eked out by stones and so on. Rise about 300 feet, span about $\frac{1}{2}$ mile. Could a man haul up, say a 50-lb. load without a winck, and without a down oad to help him. What would be the weight of the down load to bring up a 50-lb. up load? All information on the subject would be very grateful to

SINGLE WIRE.

HOPPERS IN TEA DRIERS.

SIR,—There are still, even in this year of grace, unfortunate mortals who have to worry along minus siroccos and such blissful appliances for drying tea. I am one of these unfortunate mortals. And I want to know two things. One is the best form and cheapest of a furnace to get up sufficient heat for ten (down draft sirocco size) trays. Second, the best kind of valve and hopper to use to regulate the heat and yet not to deaden it altogether.

RIP VAN WINKLE.

THE "LADYBIRD HEAD QUARTERS."

SIR,—Will you kindly insert the enclosed correspondence in the next issue of your paper, as I think an explanation from me is necessary, in reference to what Mr. H. O. Newport states, in his second narrative report published in *Planting Opinion*, of 29th April, 1898, regarding his head quarters on his return to India.

PERYOOR ESTATE, DINDIGUL, *7th May*, 1898. } FRED. R. GERRARD.

L. P. P. ASSOCIATION,
DINDIGUL, *7th May*, 1898.

To

H. ORMEROD, ESQ.,
Secretary, U. P. A. S. I.,
Madras.

SIR,

I thank you for your Circular letter, dated 27th April, 1898, forwarding copy of Mr. H. O. Newport's second narrative report, dated Brisbane, 2nd April, 1898.

Mr. Newport seems to take exception to my writing to the Managing Director, N. P. Co., for permission to use the Pillavally bungalow as his head quarters on his return to India.

I enclose copy of my letter to Mr. Ramsay.

The fact of Mr. Newport wishing to know from me where his head quarters are to be on his return to India (*vide* his letter, dated 27th Jan., 1898), rendered it necessary for me to take things into my own hands and arrange matters, and I think you will agree with me that I could not at a general meeting of my Association inform the members that Mr. Newport could have the use of the Pillavally bungalow to carry out his experiments, without first obtaining the permission of Mr. Ramsay, the Managing Director of the N. P. Co. to do so. It would have been most discourteous for me to have acted otherwise, and I maintain I was right in what I did.

A copy of this letter has been sent to the *Planting Opinion* for publication.

I am, Sir,
Yours faithfully,
(Signed) FRED. R. GERRARD,
Hon. Secy., L. P. P. Association, Dindigul.

PERYOOR ESTATE,
DINDIGUL, *3rd February*, 1898.

MY DEAR RAMSAY,

Before leaving, Newport wrote to me to say that Mr. Romilly had suggested that all correspondence during the time he was in Australia should be addressed direct to me as Hon. Secretary, L.P.P.A., and to Mr. E. G. Windle, Hon. Secretary, N. P. A. Among other things Mr. Newport wishes me to decide, is his head quarters on his return to India.

In his letter to me he says :—"I shall want to know as soon as possible what are to be my head quarters, on my return, and where I am to take my consignments to on my return to India. This point must be settled, as it will not be possible to delay once the consignments are out, and it may also be necessary to make some sort of preparation or arrangement to receive them."

In writing to Mr. Windle I suggested, that as the green bug is still bad here, Mr. Newport's head quarters should be located on the Lower Pulneys, and that one of our bungalows would be placed at his disposal.

There will be a meeting of the L. P. P. A. on the 12th instant, when I should like to see this matter decided.

COFFEE SHADE TREE.

Sun-dried Erythrina Lithosperma loppings, &c., contain per ton :—

61·50 lbs. Nitrogen.
57·38 „ Potash.
14·92 „ Lime.
13·68 „ Phosphoric Acid.

Seed cured under Messrs. Sutton and Sons' advice.

Orders should be booked early for the coming crop of seed from the parent trees of above analysis at Rs.6 per pound containing about 2,000 seeds. *Germination guaranteed.*

Only thornless variety extant, and is not procurable anywhere save from the

MANAGER, ARIENKOW ESTATE,
Shencottah.

Mr. Newport will probably return to India in four months. I write to ask if you will kindly allow him the use of the Pillavally bungalow on his return to carry on his experiments with ladybirds till the expiration of his leave with you. I shall be glad if you will kindly give me a reply to this before the 12th.

Yours sincerely,
(Signed) FRED. R. GERRARD.

GENERAL ARTICLES.

THE U.P.A.S.I. SECTION.

[UNDER THE CONTROL OF THE SECRETARY, U.P.A.S.I.]

THE following is a list of the names of planters in England or about to proceed there that have been submitted to Mr. Acworth in connection with the Currency question :—

The Hon. Mr. H. P. Hodgson	...	(Nilgiris.)
H. W. Leeming	...	(Shevaroys.)
Henry Gompertz	...	(Do.)
H. M. Hall	...	(Nelliampathies.)
R. H. Elliott	...	(Mysore.)
Brooke Mockett	...	(Do.)
Alfred Clifford	...	(N. Mysore.)
Baron J. vonRosenberg	...	(Kanan Devan.)
F. Mangles H. Mangles	...	Europe.

* * * * *

Besides this a Captain of the Indian Staff Corps, who has made the Currency question his special study, wishes to give evidence in support of the opinions expressed in the U.P.A. circular issued last December. He has been requested to communicate with Mr. Acworth, to whom his name has been forwarded.

* * * * *

The Hon. Mr. Hodgson will leave about the 14th instant, and should arrive home in ample time to give evidence before the Currency Committee.

GREEN MANURING.

(*Continued from page* 197).

SOME of the most interesting observations made by Dr. Schultz refer to the *mechanical improvement* of the *soil* by means of the *penetration* of the *roots* of the *leguminous crops*. This adds greatly to their value as accumulators of nitrogen, by adding humus to the subsoil, and by opening up the latter for the passage of the roots of the alternating crops.

This subject has been patiently studied at Lupitz, the experiments and observations that have been made having regard both to the depth to which the roots of the various leguminosæ themselves extend, and also to the depth reached by the roots of the succeeding plants, compared with that reached by them in similar soil properly manured, but not having borne leguminous plants as a previous crop.

Accompanying these observations, others have been made on the comparative fertility of soil manured with green manure, compared with that of like soil receiving, in the form of farmyard manure, a quantity of nitrogen equal to that supplied in the green manure, the mineral manuring of the two plots being alike. The crops experimented with in this direction have been, among others, rye and potatoes, the exposed roots in the root, measuring experiments having been *photographed* as *well* as *measured*. It was found that when rye followed a lupine crop, the roots of the rye exten ed to a depth of 39 *inches*, while those of the potato grow after lupines, burrowed *deeper still ;* whilst in compani plots manured with farmyard manure, but not having grow lupines, the roots of rye or potatoes only extended to depth of from 15 to 23 inches. The effect of the green manu is well shown in the following experiment on potatoes. field of over 35 acres was in 1893 devoted to a comparati experiment on farmyard manure and green manure (lupin sown after harvesting rye). Two-thirds of the field we green manured by ploughing in lupines thus grown, wh the remainder, on which wheat had been grown (not follow by green manure), was treated with about 8 tons per ac of farmyard manure. The season was an exceptiona dry one, and it was noticed that while on the farmya manure plot, the potatoes were backward and the folia poorly coloured, those on the larger part of the field, whi had been green manured, were vigorous throughout, no withstanding the drought, and bore healthy green foliag It should be mentioned that throughout the field, bo manure (about 3 cwt. per acre) and dried blood (abo 1½ cwt. per acre) were sown. The ploughing prelimina to the sowing of the potatoes was carried out by steam a depth of 15 inches, all cultural conditions, with th exception of the substitution of dung for green manu being as nearly as possible alike in both parts of the fiel The quantity of farmyard manure applied was calculated the basis of the nitrogen estimated to be contained in t green manure. The portion of the field following t lupines ploughed in as green manure gave a crop of 9 to of potatoes per acre. The portion receiving farmya manure in place of green manure gave barely 6 tons potatoes per acre. A deep section was cut in each part the field, in order to study the root development, and was found that while in the *crop following the lupines, t roots penetrated to a depth of nearly* 47 *inches,* those in th portion of the field manured with farmyard manure on reached to a depth of from 15 to 17 inches, the roots in th former case having evidently made their way in the channe formed for them by the roots of the preceding green cro The following table summarises the results :—

	Potatoes grown after lupines ploughed in.	Potatoes grown wi farmyard manur
Depth of penetration of roots...	47 inches.	15·17 inches.
Yield of potatoes per acre ...	9 tons.	6 tons.

Dr. Schultz calculates that the expense of the green cr was somewhat less than £1 per English acre, while the valu and cost of carting and spreading the farmyard manu amounted to nearly four times that sum, the total cost of th potatoes being more than doubled by the use of farmya manure, as compared with their cost when lupines we used as green manure. Mons. Grandeau is this ye himself repeating this potato experiment in the statio Agronomique de l'Est.

A crop of rye, taken after lupines ploughed in, was al subjected to careful stem and root measurement. The pla above ground at the time of harvest measured from 47 66 inches and the roots extended to a depth of nearly 4 inches. In the case of rye grown *without* green manure, th

ollowing potatoes liberally manured with kainit, superphosphate and nitrate of soda, the plant above ground measured 27 to 37 inches, while the roots extended to a depth of only 20 to 24 inches. Another crop of rye was sown on land formerly pastured, which had only been under cultivation a few years and which had only once borne lupines. On this plot the rye above ground measured from 20 to 35 inches and the roots did not extend below about 16 inches. The yield of grain on the three plots respectively, in bushels of 60 lbs. per English acre, was 27 bushels, 12 bushels and 9¾ bushels. The differences are shown in the following table :—

—	Rye		On poor, recently arable land, not having lately borne lupines.
	After lupines ploughed in.	After potatoes heavily manured with artificials.	
Height of plant above ground ...	47·66 inches.	27·37 inches.	20·35 inches.
Depth of roots ...	45 „	20·24 „	16 „
Yield of grain per English acre ...	27 bushels.	12 bushels.	9¾ bushels.

The relation between the root depth, total plant development, and yield of grain thus viewed is very striking.

This notice of Mons. Grandeau's article may be supplemented by the observation that lupines are a crop very little known to English agriculture, although a very familiar one to those in the habit of travelling on the continent. Comparatively few references are made to them in English agricultural text-books, though a note on them, written by the late Professor Lindley, occurs in Morton's "Encylopædia of Agriculture," published as long ago as 1855. Reference is there made to the great depth of their tap roots, and to the power which the plants thereby possess of bringing up alkaline matters from the subsoil, which, on decay, leave the soil charged with mineral matter. They are referred to as being specially valuable on account of the ease with which they can be grown on bad land, such as sandy gravels and thin clays, and the writer adds that "white lupines are already beginning to be quoted in the seedmen's lists."

Mr. Crisp, of Butley Abbey, Wickham Market, Suffolk, experimented with lupines in 1858, and chronicled his experience in the Journal of the Royal Agricultural Society for 1859 (Vol. XX., 1st Series). He grew the crop for grain, and expresses astonishment at the very heavy yield obtained on land of excessive poverty or sterility.

In the same volume of the Journal, Baron H. von Mathusius, of Prussia (who supplied the seed to Mr. Crisp), describes the plant and its cultivation, speaking both of the blue and yellow lupine as cultivated for the purpose of being ploughed in as green manure, as well as being consumed in the green state by sheep and as a grain-yielding plant. He too speaks of the luxuriance with which lupines grow on light, poor, sandy soils, in situations where no other leguminous plant could live. Also in the Journal of the Royal Agricultural Society for 1860 (Vol. XXI., 1st Series) will be found an interesting article by the late Dr. Voelcker, on the cultivation and composition of lupines, in which he records not only his own experience but that of Mr. Kimber, of Lubney, Warren, Abingdon Berks, and of Mr. P. H. Frere, of Cambridge. Mr. Kimber grew from 16 to 21 tons of green crop per acre. The attempt of Mr. Frere, however, to grow either yellow or blue lupines was to use his own words, "a total and costly failure," although season and soil were favourable, and neither Mr. Frere nor Dr. Voelcker could explain the refusal of the land in question to yield a crop. In the light of recent investigation it appears not altogether improbable that Mr. Frere's failure may have been *due* to an *absence* from the *soil* of the *proper* BACTERIA for the *infection* of the *plant* and the consequent production of the ROOT NODULES upon which its success, *like* that of other leguminosæ depends. It is, indeed, not remarkable that difficulties should be encountered in growing for the first time a new leguminous crop upon soil which had hitherto not known it.

Where a soil is mechanically suitable for the growth of a *deep* and *freely rooting plant*, a refusal on the part of the soil to yield a crop of lupines would POSSIBLY be satisfactorily met by *treatment* with Professor Nobe's "NITROGIN," a commercial preparation of the *special bacteria* required respectively by the various leguminous crop already fully described by Dr. I. A. Voelcker in this volume of the Journal (Part II., p. 253).

Lupines are referred to again in the Journal of the Society for 1882 (Vol. XVIII., 2nd Series), by Mr. Joseph Darby, who points out the slight extent to which English farmers are acquainted with them. Despite their extensive growth on the Continent, they still remain practically unknown to the majority of English farmers in any of the three cultivated varieties, except as an ornament in the flower garden. Lupines, as a catch crop, may be taken after an early harvest by being sown as soon as the land can be ploughed for them; or they may be grown as an early spring crop before turnips. They will *not*, however, *stand any serious frost*, and therefore, in our climate, would rarely live through the winter. If fodder should be scarce, they need not necessarily be ploughed in as manure but can be used as fodder. Unless, however, fodder is scarce, they, like other catch crops, are perhaps in the end more economically used by ploughing directly into the soil as green manure than by direct consumption.—BERNARD DYER, *in the Journal of the Royal Agricultural Society of England, December 31st*, 1896.

RAMIE AGAIN.

ITS CULTIVATION, DECORTICATION, TREATMENT AND USES.

THE following notes are issued by Messrs. Macdonald, Boyle & Co., of 39, Victoria Street, London, and may interest some of our readers :—

This well-known and valuable fibre is the product of a plant of the nettle family known as *Bœhmeria nivea*. It grows luxuriantly throughout nearly the whole of the tropics, and especially within 10 degrees north or south of the Equator, where there is a moist climate, and very little variation in the temperature, or in the rainfall throughout the year—the Straits Settlements and the surrounding countries for example. In such a climate the stems can be cut, day by day, as they gradually mature, and the factory thus kept fully employed throughout the year necessitating a small treating plant only. The crop system hitherto adopted requires an enormous amount of machinery to deal with the product of, say, 1,200 acres, within a limited time, irrespective of the difficulty of getting labour.

In an estate of, say, 1,200 acres, we advocate the laying out of three acre blocks—two acres of which are under cultivation and the

remaining acre is devoted to paths—one cooly can attend to each block, as when once started he has only to cut a daily supply of stems; no cultivation being necessary beyond returning to the land the refuse consisting of the leaves (which are stripped off on the spot as each stem is cut) and the ashes from the burnt refuse from the decorticators; the daily cuttings, assuming a crop of 70 tons of stems, per annum, per acre, would be about nine hundred-weight for each two acres.

Assuming the stems to mature in three months, the block would be planted in twelve sections occupying twelve weeks, and by the time the last section is planted, the first should be ready for cutting.

Each section will require weeding until the stems have arrived at about 2 feet high: after that no weeding will be necessary, as no weeds can grow in the neighbourhood of Ramie after the plant has arrived at that height.

If regularly cut, the plants will continue to grow for an indefinite period, but in consequence of the spread of the roots they will require periodical thinning out—removing every other one for instance—care being taken to have other land ready to transplant the roots so as to prevent waste.

Irrespective of other considerations, the system of daily cuttings is important, inasmuch as only ripe stems are cut, and a uniform quality of fibre assumed, whereas by the crop system, ripe, over-ripe, and immature stalks are cut indiscriminately, thus preventing any possibility of uniformity in the fibre.

In order to select suitable land for the cultivation of Ramie, it is necessary to understand the chemical constituents of the plant, these having been found by careful analysis of the incinerated green plants to be as follows: —

Potash	11·8
Soda	2·35
Lime	30·87
Magnesia	7·89
Ferric Oxide and Alumina	2·41
Oxide of Magnesia	0·17
Phosphoric Acid	7·29
Silica	33·01
Chlorine	2·42
	100·5
Less excess of Oxygen due to Chlorine ...	0·5
	100·0

From the above analysis it would appear that the Ramie plant exhausts the soil, but inasmuch as the whole of the refuse from the decorticators (consisting of bark and wood, and the whole of the leaves) is returned to the soil, there remains simply the fibre, which is only $2\frac{1}{2}$ per cent. of the weight of the stems without leaves; under these conditions the exhaustion is more apparent than real.

From experiments undertaken by the United States Agricultural Bureau, the mineral ingredients extracted from the soil were found to be distributed over the whole plant as follows:—Of Potash about three-fifths in the stalk, more than one-fourth in the leaves, while the *bark and fibre contain a little above one-tenth.* Of the Lime 87 per cent. was in the leaves, 10 per cent. in the stalk, and 3 per cent. in the bark. 55 per cent. of the Nitrogen was found in the leaves, 29 per cent. in the stalks, and 15 per cent. only in the bark. So that all that is actually taken from the soil is an infinitesimal amount of the Potash which is contained in the fibre.

In the choice of the land, therefore, it is necessary to ascertain the quantity of the above ingredients it contains. A soil not too heavy should be selected, and be well but not too deeply drained, as the plant is a surface feeder; it grows better in the shade. In clearing jungle, therefore, many of the large trees may be left standing.

METHOD OF CULTIVATION.

When sufficiently cleared, the land should be laid out in blocks of three acres, to which one cooly can attend, as all he has to do after the plants are two feet high is to cut the stems as they ripen and deliver them to the tram line. For the convenience of transport the tram should run through the centre of each block, so that the farthest point to which he will have to carry the stems should not be more than 250 yards, that is, he will have one and-a-half acres on each side of the line, the length of each block being roughly 250 yards; the three acres should be laid out in beds, 6 feet wide, with a pathway between of 3 feet. This will give two acres actu under cultivation. The beds should be turned over about 9 in deep, and the earth from the paths (which should be about 18 in below the level of the beds to carry off the heavy rains into drain) thrown on to them and smoothed over. They are ready for planting.

PLANTING.

If sufficient plants already exist in the neighbourhood, an es may be started with cuttings, rooted layerings, or by means of divided roots. If no plants exist, recourse will have to be to seed.

CULTIVATION FROM SEED.

Sowing.—A piece of any light soil is well dug once or twice, divided into small beds, say six feet by four feet; the surfa pressed down with the back of a spade and made moderately and then raked smooth. The evening before the seed is to be s the beds are watered, the following morning they are lightly r and levelled. The seed, which is very small, is mixed intimately dry earth, which is sufficient for six beds of the size named. mixture is sown evenly over the beds (*not covered with earth*) and lightly pressed down with the back of a spade. Light thin mat stretched on sticks about two feet above each bed to keep them su ently moist, and to protect the germinating seeds from the sun. water is given till the young plants are up, but, if necessary, the s ing mats are sprinkled by means of a broom dipped in water. mats are removed at night, so that the young plants may catch the and they are laid aside altogether when the plants are two in high. If the beds are dry they are now watered, and this is repe whenever necessary. The beds should be kept clear of weeds. soon as the plants are big enough to handle, and before they bec crowded, they are transplanted to the field—a wet day being ch for the purpose; they are taken up with a spade, keeping a s ball of earth round the root of each and planted about nine in apart. The beds should be kept weeded until the plants are 2 high, when no further attention is necessary.

PLANTING ROOTS.

When the plantation is started by roots, they should be pla 18 inches apart.

LAYERING.

The plants can be propagated by means of layering either the seedling or the root; when the plants are grown for the sp purpose of propagation, they should be arranged three or four apart, set slantingly, two or three inches of earth covering the The ground must be kept clean and loose. When the first st have attained the height of about three feet, they are ready layering. The ground then should be thoroughly moistened, the stalks bent gently down, fastened with small crotchets covered with three or four inches of earth, leaving the top of layered stalk uncovered. Care should be taken to avoid detac the stalks from the parent root. In the course of three or weeks the layers will have made stalks which can again be lay for the same purpose, and quite a number of the stalks can be out for transplanting in order to increase the plantation.

PLANTING BOOKS.

Map of Ceylon Tea Estates Rs.9; colored Rs.10; Mounted in case Rs

Map of Ceylon Plantations, Plain Rs.8. Inga Va, Rs.2-8. Areca As.12. Cocoanut Planter's Manual, Rs.4-10. Ceylon Manual of Che Analyses, Rs.3-10. Tobacco Cultivation, Rs.3-10. India Rubber (n the Press). Coffee Planter's Manual (now in the Press). All about S Rs.3-10. Coffee Tree and its Enemies, Rs.1-8. All about Grub, R Brazil as a Coffee Country, Rs.1-8. Cardamoms, Re.1. Ceylon C Soils and Manures, Rs.1-9. All about Aloe and Ramie Fibre, Re.1. E Buildings, Rs.4-4. Coffee and Chicory, Rs.1-13. Coffee Cultivatio Ceylon, As.5. Tea Cultivation and Manufacture, As.5. Tea Cultivati Ceylon, As.6. Tea at high elevations in Ceylon, As.3. Manuring o Estates, As.8. To Economise Labour Supply, As.12. Planting, Pruning Preparation of Tea, As.12. Salt for Agriculture, As.8. Cocoa, Cocain its Salt, Rs.2. On the Importance of Lining, As.4.

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SPICES.	HIDES.

AND ANY COLONIAL PRODUCE,

For Sale on LOWEST COMMISSION.

Being in the centre of the Produce Markets we are able to effect quick sales at the high market value of the day.

Offers with samples reported on by return Mail.

BANKERS:—MESSRS. BARCLAY & CO., LD.,
Lombard St.

Cuttings.

These are prepared by dividing the stalks into lengths of five or six inches. They are set out obliquely, about twelve inches apart, and nearly covered with earth, and if the work is done before the hot weather begins, they will require neither watering nor shading, but must be kept clean of weeds. In two weeks they will have rooted.

Transplanting.

In time the entire space between the rows will have become filled with roots, unless precaution is taken to remove every alternate plant as soon as the rows become overcrowded; but care should be taken to have other land ready for removing the transplanted roots.

Even Growth.

The matter of securing an even growth of stalk is a very important consideration. By even growth is meant not only even length and size of stalk, but uniformity of growth. A stem of Ramie grows rapidly when there is sufficient moisture, but is of stunted and slow growth when opposite conditions prevail. When one of these conditions follows the other in the same growing crop, the fibre is adversely affected, in the after-process, to fit it for spining the chemical treatment, necessary to reduce the hard and stunted growth, to the condition of spinable fibre, may wholly disintegrate the structure of the fibre, in the softer or free grown portion of the stalk, and great waste and loss ensue. Therefore, where lengthened droughts are likely to occur, means of irrigation must be provided.

Crop.

One acre of land should produce at least 70 tons of stems (stripped from leaves) per acre. This means that each cooly will have to cut and bundle, on his 2 acres under cultivation, about 9 cwt. of stems (weighing, say, 6 ounces each) per day, and reckoning 313 working days to the year.

Decorticating.

After cutting, the next operation is to decorticate the stems and separate the fibre. One battery of decorticators will treat the produce of 200 acres. This battery is placed in the centre of each 230-acre block so as to minimise the transport of the stems.

Degumming.

The fibre produced by the decorticators is embedded in a mass of gum and resinous matter, insoluble in water, which must be removed before the white filasse suitable for textile purposes can be obtained. It has therefore to be sent to the degumming shed, where by means of chemical process the cleaning is effected, and a beautiful white fibre obtained; it is then dried and packed for export.

Uses of Ramie.

It would be impossible to enumerate the innumerable uses that Ramie can be put to in the textile industries of the world.

It can be manufactured into goods so widely diverse as lace and heavy sail cloth. When used for the former purpose, one of the peculiar properties of the fibre appears as in finishing the lace Ramie takes a fine gloss excelling that of silk itself, and the same property is manifested when it is made into damasks and similar goods. It will mix well with wool or silk, and can be used easily in combination with cotton.

The strength of the material is shown by the fact that a test of a strip 1½ inches wide and 9 inches long of navy sail cloth made from it showed a breaking strain of 870 lb., which is double that of the ordinary Government test. One factor is important, viz., that canvas made from it does not mildew, so that sails may be furled wet, or canvas hose rolled when saturated, which cannot be done with ordinary canvas made from flax.

Estimate of Plant and Machinery to treat the produce of 400 acres under cultivation.

	£
Two Batteries of Decorticators, including Engines and Boilers.	1,200
One Degumming Plant, including Fittings	500
Engine and Boilers	400
Soaking, Chemical and Water Tanks	250
Steam Barrel, Steam Valves and Fittings	75
Steam Pump and Appliances	100
Belting	50
Weighing and Baling Machinery	300
Freight and Sundries	175
	3,050

This plant will produce about two tons of filasse per day. Estimate does not include the cost of erection, which will naturally vary according to the situation of the estate and the labour available.

Estimate of cost of necessary Machinery for treating the product of 1,000 acres.

Plant and Machinery.

		£
Decorticators 5 Installations of 40 Drums, with 5 12-H. P. Engines		3,000
One Degumming Plant		1,000
Steam Boilers and Engine		1,000
Soaking Tanks		250
Chemical Tanks		250
Water Tanks		100
Steam Pump and Appliances		100
Loading Crane, Weighing Machinery, etc.		500
Fittings for Treating Sheds		250
Steam Barrel, Steam Valves and Fittings		150
Belting	say	100
Baling Machinery		500
Freight and Sundries	say	350
		7,550

The above machinery will produce 74 tons per day of cleaned filasse. This estimate does not include fitting and fixing for the reasons stated above.

Table of cost, including Freight, etc.

Assuming the product to be one and-a-half tons per acre per annum on 1,000 acres, the following table will show at a glance, approximately, the price of each ton of filasse according to the cost of labour, the other figures remaining constant:—

Wages per Day.	Cutting.	Decorticating.	Degumming, including Chemicals.	Freight, including Wrapping for Bales.	Brokerage and Landing Charges.	Total Cost per Ton.
s. d.	£ s. d.	£ s. d.	£ s. d.	£ s.	s. d.	£ s. d.
0 3	1 13 9	1 4 8	2 9 0	2 10	16 10	8 14 3
0 6	3 2 5	1 19 3	2 12 10	2 10	16 10	11 1 4
1 0	5 19 9	3 8 4	3 0 7	2 10	16 10	15 15 6
1 6	8 17 1	4 17 5	3 8 6	2 10	16 10	20 9 10

The brokerage and landing charges have been taken at the sale price, £42 per ton, which sum the filasse will readily obtain in the English market. If a higher price is secured, of course this item will be increased.

Terms.

The above machinery is supplied on condition that 25 per cent. of the net profits is paid to Messrs. Macdonald, Boyle & Co., by way of royalty, and in all cases, before the machinery is supplied, the purchasers will have to enter into a contract to that effect. One-third cash is payable with the order, and the balance when the machinery is packed ready for export.

Macdonald, Boyle & Co.,

39, *Victoria Street, Westminster, London, S.W.*

LIBERIAN IN THE STRAITS.

(*Continued from page* 216.)

Coffee Husking in London.

Some time ago I received a circular regarding the curing of parchment in London, and as it contains some valuable and useful information, I think I cannot do better than quote it in full:—

Sir,—Having been the first to erect machinery for husking coffee in London, and being frequently asked for a few particulars as to the treatment of the parchment, we venture to submit the following remarks to those of your friends who are interested in the question. At the outset we would mention that the operation is chiefly applicable to coffee treated by what is called in some countries the 'West India preparation'—*i.e.*, to 'washed' coffees, which are known by the trade here as 'coloury.' As these descriptions are much sought after by buyers, and command far higher prices than

the qualities known as 'unwashed,' it is obvious that planters in their own interests should endeavour to market their crops in the former condition, the difference in price in a normal market being fully 20*s.* to 25*s.* per cwt. in its favour.

"To obtain the best results it is necessary that each operation, commencing with the gathering of crop, should be performed with great care and discrimination. Only cherries of uniform ripeness should be plucked, as otherwise the pulping and most of the subsequent operations will be made difficult to perform, and the cleaned coffee will lack that uniformity of appearance and colour which is so highly prized by the buyers.

"The cherry coffee should be passed through the pulper (the machine for removing the pulp from the berries) as soon as possible after it is gathered, and the pulp is more easily removed before it has had sufficient time to dry and shrivel; care must be taken to see that the cherry pulp is thoroughly peeled from the berries, and as several of the latter will escape with the action of the pulpers, sieves of a size which will allow only the free parchment coffee to pass through must be used, so that the cherries remaining in the sieves may be returned to the pulping machine. After pulping, the parchment coffee has to undergo a process of fermentation, and subsequently of washing in suitable tanks, when the adhering saccharine matter is got rid of; during this latter operation it is of great importance that the parchment should be constantly stirred about, as by this means the light, black, and imperfect beans rise to the surface of the water, as well as sticks, leaves, and such like impurities, which should be skimmed off and treated separately. At no subsequent stage can this important object be attained in anything like so cheap and effective a manner as the inferior beans can only be afterwards separated by hand-picking—a tedious and costly operation.

"After washing, the parchment coffee has to be thoroughly dried—an operation requiring, perhaps, more knowledge of the article than any other, as on the way it is carried out depends to a very great extent the subsequent market value of the crop. If not sufficiently dried, the parchment becomes more or less musty in transit, and the colour deteriorates, thus seriously affecting its selling value, and from the fact that the outer layer of coffee in the bags dries on the voyage to, a greater extent than the bulk in the centre, it is impossible for us, when we dry it here before husking, to obtain an even result. In addition to this, freight and charges have to be paid on extra weight, which is an absolute loss. We may mention that many parcels we have received in a damp state have lost over 20 per cent. after drying, exclusive of the loss in weight naturally caused by the removal of the parchment. It will thus be understood that it is imperative the parchment should be properly dried, especially as extra charges are incurred for drying it here. On the other hand, care must be taken not to overdry the coffee, as otherwise the colour will be impaired to some extent, which will reduce the market value. It is, therefore, apparent that the greatest care and experience is required to ascertain when the parchment is in really prime condition. After drying, coffee intended for husking in London has only to be shipped without further loss of time.

"The advantages to be derived by planters in forwarding their coffee in parchment are several. The parchment covering acts as a great protection to the bean, while in transit, from all the deleterious influences to which it is necessarily subjected while in the close hold of steamers, on quays, etc., and above all it preserves the colour. This is probably one of the greatest advantages of any, as the finer the colour of the coffee the higher is the price paid by buyers, and it has been abundantly proved that coffee husked here fetches prices higher by several shillings a hundred-weight than the same coffee when cleaned abroad. Planters are also enabled to market their crop probably several weeks earlier than if they have to wait to husk it themselves. A material saving of labour is effected in districts where it is scarce, or where the crop is a heavy one, at a time when it is extremely important all hands should be concentrated on harvesting, and when this is complete on the more careful cultivation of the plantation, thus increasing its powers of production and at the same time getting the husking of the coffee done as cheaply as it could be effected on the estate. The outlay on machinery and other incidental expenses would be saved, and capital that would be locked up is set free. Further, the dangers of a breakdown are avoided—a very serious matter on estates, where every important piece of machinery has to be obtained some thousands of miles away. Receiving, as we do, many thousand bags of parchment coffee each year, we have necessarily obtained considerable experience in the manipulation, and are enabled to work each parcel in the way best calculated to meet the requirements of the trade in all its differ variations.

"The total cost of receiving from import ship, landing, huski sizing, and all the usual operations is 2*s.* 6*d.* per cwt., which believe is at least as cheap as it can be performed by planters, if cheaper. The charge for drying is extra, and depends entirely on condition of the parcel; but from what we have already stated, it charge which, in their own interests, planters should never incur h The loss in weight from husking varies largely according to nature of the parchment, and ranges from about 15 per cent. up t a few exceptional cases about 22 per cent. The average loss is fr 18 per cent. to 20 per cent.* The whole of the various operati are carried out in our bonded warehouses, under the immedi supervision of the officers of the Crown, which affords an import guarantee to importers that the correct weight is returned to the no customs duty is charged by the Crown authorities on the husk

"We have occasionally received parcels of coffee, dried in cherry, to husk, but we cannot recommend this mode of shipme though it is possible that in a few individual cases planters mi find it desirable to adopt it. In the first place, it adds unduly to charge for freight, the coffee never turns out of such fine colour a does if prepared as already detailed, and of course the loss in wei after removal of the cherry and parchment covering, is much heavi besides, it is much more difficult to work and necessitates a charg at least 3*s.* 9*d.* per cwt. The foregoing remarks apply solely coffee of the species of Arabia. As regards Liberian coffee, we h no hesitation in advising that, unless absolutely compelled, shipme should never be made in cherry, as this species, even under favo able circumstances, is most difficult to work.

"That the business has developed so largely since we commen operations in 1884 appears to us conclusive proof that many plant are fully alive to the benefits to be derived by the adoption of t method for marketing their crops, and we, therefore, trust th remarks may be of special interest to those who are at present unaw of the facilities to be now obtained in London, and who have suitable machinery on their estates for cleaning the coffee the selves.—We are, etc., MAJOR & FIELD, Red Lion and Three Cra Wharf, Upper Thames Street, London, E.C., March, 1892."

We pioneer planters have not had things made so easy for us: have had to find out for ourselves what kinds of machinery, pulp and peelers gave the best results, and we have had to pay very heav for our experience. The young planter of to-day has only to go to neighbour, see what kind of store he has, what kind of engine, pul and peeler, elevator, dryer, etc., and then he can go home and or the same, without risking money or time in experimenting with so more or less useless and expensive machinery.

But let me take it for granted that you have your store a machinery all complete, and that you are ready to peel. Both bef and after peeling you weigh the coffee, and you will find that in p ing you lose from 33 to 40 per cent. The peeler is a machine wh divides the bean from the husk and polishes it until it has lost thin silk skin which covers the bean. The husk and silk skin blown out at one end of the peeler, whilst the clean coffee falls throu below. To get a thoroughly good and clean sample of coffee, the par ment has to pass through the peeler as many as four or five tim Messrs. Gordon and Company, the manufacturers, themselves told that the parchment should pass only once, and that if the peelers not do the work satisfactorily in one operation, there was not suffici pressure on the beans, and more dead weight should be suspended the lever of the peeler. But my own experience has shown me t this will wear out the peeler so much quicker, and I would rath therefore, let the parchment pass through the peeler several times w less dead weight and pressure on it.

An elevator is simply a continuous chain carrying buckets wh lift the coffee from below the peeler to the store above or into a si

The sizer is a cylinder with a lot of different-sized holes, and this cylinder revolves, the coffee is dropped in at one end, and a passes through the cylinder, the small berries drop through the sn holes and the larger ones a little lower down through larger ho whilst the very large beans or pieces of wood or stones will fall ou the other end of the cylinder.

There now remain only the final picking and sorting. This is d by hand; all black and broken beans are carefully picked out, and soon as this has been done the coffee is packed in bags and shipp off to the nearest market.

* This refers to Java coffee. Liberian coffee loses in peeling about 33 to 40 per c

So far the planter has had charge of it, and he has taken good care f it, the bags have been carefully covered up, and every bit of dust as been brushed off; and the carts leave the estate with their precious oad with the planter's blessing. How sick would the planter be if he ould only see how his bags are treated the moment they have left his ersonal supervision: the cartmen throw them all in a heap at the tation, and every cooly walks over them with his dirty feet and leaves is mark on them; on board ship they are thrown down 20 to 30 feet nto the hold, sometimes bursting, their contents scattering all over he ship,—but the planter happily does not know it. And so it is with s and all that concerns us. We walk along in ignorant bliss, unaware f the dangers that await us, or have already befallen us, and it is ust as well that this be so. How would men otherwise cheerfully per- orm their work and devote all their life, health and energy to a pur- ose if they knew all the time that it was simply wasted and idly hrown away?

No. such are not the planter's thoughts when he has shipped his rop. He only feels that a great responsibility is taken off his houlders, and whether the ship goes down or his burned, it does not oncern him: his coffee is well insured, he need not trouble his mind bout that, and he does not. As far as he knows, his coffee is safely n its way to the market bound to fetch "top" prices and to make name and a reputation for him, and to lay, the foundation for enormous futurewealth. Let us hope that he won't be too greatly disappointed.

(To be continued.)

NO BUILDING BIG ENOUGH.

Probably the two women whose names we are about to mention (by heir good will and consent) never saw or even heard of each other. A road bit of sea-water rolls between the places where they severally ive. Still, the world is getting smaller every day, and it is quite possible they may meet; if they do, they will have a common subject for a talk. Without waiting for that, however, we will let the reader into the secret (so far as it is a secret) right on the spot.

The first lady to be named resides at Bishop's Norton, near Kirton, Lindsey, Lincolnshire, and in a letter dated the 16th of the blustering month of March, 1893, she says, "*I trembled from head to foot.*"

This would scarcely be worth mentioning if it had been simply the result of a fright and therefore bound to pass off in a few minutes. But it lasted for a long time and did not arise from a fright or from any other form of excitement. It meant sheer weakness and a wholesale upsetting of the nerves. "I was constantly sick and dizzy," she says, "and had a dull pain between the shoulders. I had no appetite, and the effect of what little I did eat was so bad and gave me so much distress that after a time I hardly dared touch any food or drink. During this period I may just mention that I was terribly constipated, intervals of ten days sometimes elapsing between the actions of the bowels. No laxatives or enemas availed to relieve this condition, and I became more feeble and prostrated day by day. My illness began in August, 1892, and after four months' suffering I was completely cured in December by your remedy. Indeed it was not necessary for me to take quite one bottle. If any one who reads this little statement of mine wishes to know more about my case, I will gladly answer inquiries. (Signed) Mrs. M. G. Walsham."

The second lady, writes from her home, No. 12, Horgan's Buildings, College Road, Cork, dating her letter the 27th of the sunny month of June, 1893. She says, "Everything was a trouble and a burden. For nights together I got no sleep. I couldn't bear the noise of the children. I had no desire for company; I wanted to be alone in my misery. I often thought I was going to die. I was in this way for nearly twelve months."

Now this was bad; very, very bad. When a woman cannot bear the noise of her own children—which of all noises is least observed by a mother's ear—why, her nerves are, as we might say all gone to pieces. And, inasmuch as the nerves are only a part of the body, it follows that the whole system is badly out of order. And so it was. "The complaint," she says, "came on in October, 1890." It was marked by failure of the appetite, pain and weight in the chest after eating, a sinking feeling at the pit of the stomach, biliousness, flatulency, and other signs with which the readers of these articles are so sadly familiar.

Of the progress of the malady and how low it reduced her she has already spoken. The end of it all—a happy end, thank Mercy—was like this. "In September, 1891," she adds, "my husband persuaded me to try a medicine he had heard and read so much about. I did so, and soon found relief—a relief that none of the other medicines I had used were able to give me. My lost appetite came back, and my food digested easily and strengthened me. You hardly need be told, that I continued taking the medicine, and soon I was well as ever I was in my life and have hailed nothing since. Yours truly, (Signed) Mrs. Lucy Carroll."

Women, like men, never agree on all the topics which come up in conversation. It would be a dull world if they did. But these two will agree that they were afflicted with the same complaint—indigestion and dyspepsia; and that Mother Seigel's Curative Syrup, which restored them both to health, is one of the very best friends in time of trouble that their sex ever had.

And what is more, if all the women in this kingdom who think the same were collected in one meeting, no building could be found big enough to accommodate them.

MARKET REPORT.

COFFEE.

Messrs. R. J. Rouse & Co's Weekly Coffee Report. (April 22, 1898, says:—Public sales have been on a very large scale, but in spite of this a good demand has prevailed and last week's values have been fully maintained.

About 6,500 bags East India were catalogued, and Home Trade marks attracted keen competitions, several parcels realising extreme rates, whilst medium qualities sold steadily.

Costa Rica, of which the Central American chiefly consisted, was readily disposed of at fully previous prices, but other kinds were rather slow of sale.

Futures have been steady during the week, but business has again been limited, and there is practically no change to note in quotations.

Messrs. Wm. Jas. and Hy. Thompson's Report of the Colonial Markets for the Week ending April 20th, 1898, says:—Bank rate 4%. Bombay Exchange closes at 1s $4\frac{1}{32}$d. Brazil Exchange $5\frac{15}{16}$d. Rupee paper $3\frac{1}{2}$% $61\frac{3}{4}$. Silver $25\frac{15}{16}$d per oz.

Public sales, which were suspended for the Easter holidays on the 7th. instant, were resumed on the 14th. Since then supplies have been very heavy, importers being anxious to realize the recent large arrivals. The demand for all the better qualities has been good. and values for these have advanced 1s. to 2s., and even more for fine; the ordinary and common kinds on the other hand are barely steady, mixed Columbian and Jamaica being especially difficult of sale at a reduction of about 1s Further extensive supplies are advertised for sale, and the market will be fully supplied for some time to come.

Brazil markets are very quiet. and about unchanged.

Daily receipts averaged 10,000 bags in Rio and 11,000 bags in Santos.

Futures have been quiet and lower, showing a decline of 9d. to 1s. per cwt. since our last, viz.:—Good average Santos in Havre, May delivery, fcs. 35.25, in Hamburg pf. $28\frac{1}{4}$, and No. 7 low ordinary Rio in New York $5.85.

To-day's London official quotations are:—

	April	May	July	Sept.	Dec., '98.	Mar., '99.
Santos ...	28/3	28/3	28/9	29/3	29/9	30/3

We quote:—

Ceylon, mid to good mid.	95/@107/	Costa Rica, mid. to fine...	76/@106/
Do. small to low mid.	80/ ,, 93/	Do. ord. to low middling.	50/ ,, 74/
East India, mid. to good mid ..	76/ ,, 92/	Jamaica, good to fine ord.	38/ ,, 52/
Do. small to low mid.	58/ ,, 75/	Do. greenish to fine colory...	70/ ,, 125/
Guatemala, mid. to fine...	70/ ,, 95/	African ...	27/ ,, 29/
Do. good ord. to low mid...	54/ ,, 68/	Columbian, ordinary ...	35/ ,, 40/
Salvador, good ord. foxy greenish...	40/ ,, 42/	Do. good ord. to low mid...	42/ ,, 67/
		Do. mid. to fine .	72/ ,, 95/

Receipts in Brazil to 20th April compare as follows with previous years:—

	1897-98.	1896-97.	1895-96.
	Bags.	Bags.	Bags.
Rio	3,795,000	3,079,000	2,019,000
Santos	5,678,000	4,678,000	2,781,000
	9,473,000	7,757,000	4,800,000

In Sale—

5 tierces 10 barrels 2 bags Plantation Ceylon, ... 50/ @ 108/

4,570 bags East India.
- 1,704 bags Mysore chiefly sold ... 49/6 „ 115/6
- 2,349 bags Coorg ... ... 50/ „ 107/6
- 448 bags Neilgherry ... ... 41/6 „ 97/
- 69 bags Salem ... ... 41/6 „ 63/6

9,950 bags Costa Rica part London cleaned, chiefly sold ... 44/ „ 112/
2,378 bags Guatemala „ „ „ ... 43/6 „ 93/6
3,419 bags Columbian „ „ „ ... 27/6 „ 85/
229 bags Salvador partly sold ... ... 48/ „ —
147 bags Mexican, London cleaned, part sold ... 73/ „ —
93 bags Bolivian, London cleaned, without reserve ... 36/ „ 51/
127 bags Venezuelan bought in.
7 bags Vera Paz ... ... 53/6 „ —
47 bags Peruvian, part London cleaned, partly sold ... 39/ „ —
44 bags Guayaquil chiefly sold ... ... 36/ „ 37/6
5 bags Liberian W. C. Africa bought in.
266 bags Ecuador bought in.
610 barrels 168 bags Jamaica, part London cleaned, chiefly sold ... ... 26/ „ 78/
282 packages Mocha bought in
135 bags Abyssinian bought in

Landed last week ...1,022 *tons. Deliveries* ...798 *tons. Stock* ...13,473 *tons.*
Do. last year ...1,523 „ „ ..735 „ „ ...12,623 „

TEA.

Messrs. Gow, Wilson and Stanton's Indian, Ceylon, and Java Tea Report, dated April 22nd, 1898, says :—

QUANTITY BROUGHT TO AUCTION IN LONDON FROM 1st JUNE TO DATE.

	Indian.	Ceylon.	Java.
1897-1898...	1,470,759 packages.	1,048,134 packages.	38,740 packages.
1896-1897...	1,465,104 „	975,361 „	38,048 „

22,972 *pkgs.* INDIAN
28,925 „ CEYLON
1043 „ JAVA
} Total 52,940 packages were offered in public auction this week.

The heavy duty payments which took place in March, caused figures for the first quarter of 1898 to show a satisfactory increase over previous years.

Quantity of tea (in lbs.) on which duty was paid at all Bonded Warehouses in the Kingdom from 1st January to 31st March.

	1898. pctgs.		1897. pctgs.		1896. pctgs.		1895. pctgs.	
Indian ...	33,030,413	57	32,620,855	58	32,632,032	58	28,789.480	55
Ceylon ...	19,614,632	34	18,544,961	33	17,441,651	31	14,893,876	28
China ...	3,928,336	7	4,756.368	8	5,028,697	9	7,648,440	15
Other Countries	1,052,059	2	612,491	1	862,357	2	1,284,458	2
Total lbs. ...	57,625,440		56,534,675		55,964,737		52,616,254	

A Circular issued by the Tea Brokers' Association states that Indian Tea importers wish sales held on Mondays only from the 1st April to the end of July, and in other months on Mondays and Thursdays; 25,000 to 30,000 packages to be offered on Monday, sales continuing until 4 o'clock, any surplus being offered on Wednesday.

Indian. The market re-opened on Monday with a sale of 22,972 packages. Bidding for all descriptions was steady, and quotations before the holidays were fully maintained with a somewhat tendency. The Official Wire from Calcutta gives exports to United dom for the first-half of April as 56,000 lbs., against 85,000 for same last year.

Week's av. of Tea sold on Garden Account, 1898, 16,143 pk av. 7·87d. 1897, 3,862 pkgs., av. 6¾d.

	1898. Pkgs.	Price.	1897. Pkgs.	Price.	1st June to date 1897-8. Pkgs.	Price.	1st Jun date 1 Pkgs.
Assam ...	8,341	9·27	792	8	516,784	9·87	503,730
Cachar & Sylhet...	5,689	6·24	1,668	6	286,617	6·81	278,593
Chittagong ...	—	—	—	—	5,686	7·15	3,298
Chota Nagpore ...	—	—	—	—	1,666	5·03	1,944
Darjeeling ...	64	7·75	—	—	66,570	11·08	57,915
Dooars ...	1,841	7·37	58	8¾	136,007	7·45	129,460
Kangra, &c. ...	140	5·60	—	—	8,408	7·12	5,740
Neilgherry ...	—	—	196	6¾	6,203	6·93	4,060
Terai ...	—	—	—	—	20,016	7·19	13,488
Travancore ...	68	8	1,148	7	29,672	6·36	27,896

Total sold on Garden Account 1st June to date 1898, 1,077,157 p av. 8·70d. 1897, 1,026,122 pkgs., av. 9·06d.

Comparative prices of Indian Tea in London :—

		1898.	1897.	1896.
DUST.	(Fair ordinary, dark liquor) ...	3½d	4d	4¾d
FANNINGS.	(Red to brown, strong rough liquor) ...	3¾d	4d	4d
BROKEN TEA.	(Brownish to blackish, strong liquor) ...	6d	6¾d	6d
PEK. SOUG.	(Blackish greyish, useful liquor).	6¼d	7d	6¼d
PEKOE.	(Greyish to blackish, some tip, useful liquor) ...	7d	8¼d	7¾d
PEK. SOUG.	(Blackish greyish, inferior liquor).	5d	5¼d	5¼d
PEKOE.	(Blackish greyish, some tip, inferior liquor) ...	5¼d	6d	5¾d

Ceylon. 28,925 packages were brought to auction at the opening on Tuesday last. A decidedly better tone was noticeable in the den all grades meeting with somewhat keen competition, which caus distinct hardening in the market, with a general though slight imp ment in prices. Many of the Teas showed better quality but the adv extended not only to these but to some less desirable parcels. Pr telegraphic advice gives the exports to United Kingdom from 1st to April as 3,100,000 lbs. and estimates the quantity available for the m as lbs. 8,500,000 against lbs. 9,500,000 last year. Average for week 7 against 7¾d. same period 1897.

Ceylon Tea sold on Garden Account 1st January to date 337,813 pkgs., av. 7·65d. 1897, 299,166 pkgs., av. 8·05d.

Comparative prices of Ceylon Tea in London :—

		1898.	1897.	1896.
PEKOE SOUG.	(Ordinary leaf; fair liquor) ...	6d	6d	6d
PEKOE	(Ordinary leaf, little twist; fair liquor) ...	6¾d	7d	7¼d
PEKOE SOUG.	(Rather bold leaf; indifferent liquor) ...	4¾d	4¾d	5d
PEKOE	(Somewhat bold leaf; indifferent liquor) ...	5¼d	5½d	5½d

Java. The Javas were nearly all sold at slightly improved rates.

PUBLIC SALE OF SOUTH INDIAN TEA.

(AVERAGE FOR ALL INDIA 7·87*d.*) *April 22nd.*

GARDEN.	Total.		Average.	Broken Org. Pek. or Flowery Pekoe.		Pekoe and Unassorted.		Broken Pekoe.		Pekoe Souchong.		Broken and Souchong.		Fannings, D and Variou	
	Quantity		Price.	Quantity	Price.	Quantity	Price.	Quantity	Price.	Quantity	Price.	Quantity	Price.	Quantity	Pri
Travancore ...															
Isfield T Co Isfield...	68		6	...	...	20	5¾	28	† 7	20	5	...	...	...	

Teas marked thus † were withdrawn.

PLANTING OPINION.

A WEEKLY JOURNAL

WRITTEN BY PLANTERS FOR PLANTERS.

VOL. III.] COONOOR, SATURDAY, MAY 21, 1898. [No. 20.

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SUBSCRIPTION.—Advance Rates: Yearly, Fifteen Rupees; Half-yearly, Eight Rupees; Quarterly, Five Rupees, and Monthly, Two Rupees, including postage. Single Copies, Eight Annas.

ADVERTISEMENTS.—From the 1st October, 1897, the charge for line advertisements will be: 4 as. per line for the first, 3 as. for the second, and 2 as. for the third and succeeding insertions. Five-line advertisements from Subscribers will be inserted for three issues for one rupee; non-Subscribers will be charged two rupees.

DOMESTIC OCCURRENCE.—The fee for inserting a domestic occurrence will be *One Rupee* for each insertion, payable in advance.

N.B.—Remittances should be sent to the Manager, "Planting Opinion," 11/12, Second Line Beach, Madras.

IMPORTANT NOTICE.

The Business Offices of this paper having now been removed to Madras, all remittances should be made payable to the Manager of *Planting Opinion*, 11 and 12, Second Line Beach, Madras, who will also attend to all advertisements, &c.

Letters to the Editor should be addressed to Coonoor, as usual.

SEASON REPORTS.

NOTICE.

TO OUR SEASON REPORTERS.

Please post your next reports to reach Madras on Friday, the 27th May, 1898.

Season Reports should be sent to the Printers, Messrs. Addison & Co., direct, and not to *Planting Opinion* Office.

Nilgiris.

Coonoor, 18*th May.—Weather.*—Rain so far is only just over the inch for the month, and since the 5th instant, all rain has come from the south-west quarter. High winds are only occasional in strong gusts. Temperature of course has fallen. *Crops.*—Coffee blossom is setting very well so far, and big crops are to be the rule, if all the subsequent "if's" are settled with in the right way. The long N. E. and spring drought did a great deal of damage to orchard fruit, but this is not an absorbing subject yet awhile. Tea is still "down in the month," but is showing a slight improvement. Flush worm is showing up again. *General Health.*—Health is distinctly poor; colds, fever and influenza being prevalent.

Kullakamby, 18*th May.—Weather.*—Cloudy weather and slight showers nearly every day, with strong wind. *Crops.*—Coffee looking very fair. *General Health.*—A good deal of fever about still, and general health very indifferent.

THE PURSUIT OF HOBBIES.

There are unfortunates many, we fear, who drag on a cheerless existence without the brightening influence of a single hobby. The depressing effect of a hobbyless man or woman on all his or her neighbours is well known. Work is well in its way, pleasure and amusement are good, very good. To combine both in a third pursuit ought to be the aim of every self-respecting being who will, if certain dangers are avoided, attain unto the blessedness of a hobby.

The seekers after the light must guard themselves against certain definite dangers. They must not try to hug themselves with the idea that they can make a hobby out of their pleasure or out of their business. No, business or serious work they must have, pleasure is likewise indispensable. Not to replace either, but as a crowning step to both is the proper function of a respectable and to-be-tolerated hobby.

The choice of a hobby is a most delicate matter, not to be approached too lightly, nor on the other hand with too business-like a manner. The well-balanced mind will observe a courteous familiarity with the object of his quest. He must be on his guard against gushing hobbies, he must not exhaust their possibilities all at once. That were fatal to the life of any respectable hobby. To help the beginner, we may point out certain points about a well-born hobby which no respectable individuals are without. The balance between their apparent use and the apparent pleasure they afford must not be of equal proportion. Either the pleasurable side of a hobby must be well-pronounced, or its more sober, but often more attractive usefulness must overshadow it. For hobbies exist for man and woman, and not man for hobbies. Though men often exist simply as hobbies for their friends and enemies.

There are two great classes of mankind in urgent need of hobbies,—the workers and the worked for. They do not require the same sort of hobby. A worker needs as his hobby a pursuit, the predominant quality of which is pure pleasure, as shown in its obtrusive uselessness. Its end however is pure business, like that of a wasp. A slight tinge of business must be combined in the method of the attainment of the pleasure, or the change will be too abrupt. The worked-for class, the gay and very useless butterfly, demands a higher aim of his hobby. To please his more elevated morals, his hobby must bear on its smug face the hall-mark of dull work. No outward show or gay trappings should adorn it. Its pleasurable side lies in the fact that its thorough uselessness is decorously hidden in its inmost core. For nothing renders one of the worked-for more savage than knowing that his hobby is of real use to his neighbours, for he feels deeply and justly that the fundamental law of his being has been broken.

From general laws modern philosophy descends to particulars, to point its platitudes by would-be opposite illustrations, instances that, alas, disprove its theories as often as they support them. So we shall likewise turn from the broad laws that govern hobbies to such particular cases as have come within our ken. We have known an amiable gentleman, a member of the illustrious Civil Service of India, to so chase his hobby that he died of it. If not in the fleshly body, he certainly died the death of his service. He had a pretty talent for singing the more elevated music-hall songs in the Assembly Rooms of one of our miscalled Hill Capuas. Being withal well up in the service, and renowned for the extreme solidity of his understanding, society had a wicked pleasure in applauding his efforts. He served in fact as a hobby to his neighbours. When a wandering troupe of comiques strayed out from England, the untutored minds of the station public could not appreciate their merits. For the love of stage acting, as acting, is almost a minus quantity in India. We love to act ourselves, and more to see our friends act. For the blunders of our friends are exquisitely enjoyable. But acting, except off the stage, is only attractive in India when it obviously amateur work. This our amiable friend w unable to see. He saw that his friends laughed more his jokes than they did at those of the London troupe. judged by the high standard of Anglo-India, he proved su a success, what could he not achieve on the stage England? It is bitter to record such folly, but a hobby an uncanny animal sometimes, and must be kept strictly its place. Our worthy friend resigned the service a went home. It is long years since we last heard of hi but occasional paragraphs in the *Mudshire Gazette* menti his extraordinary enthusiasm in providing comic recitatio for the good people of the Infirmary and Workhouse of t county-town.

There are other awful examples of hobbies bolting wi their owners, but we will not sadden our readers with the recital. The bright side of the picture is revealed by t extraordinary happiness achieved by Smurthwaite, of t Forest. Smurthwaite is a jungle wallah of the deepest dy and has a profound knowledge of the jargons and custo of the forest tribes. Knowing that his great failing is avoi ance of society, he has determined to do what he could counteract the similar tendency among his Irulars a Kurumbars. Of a broadly religious nature, he, havi heard of the feats of the Civil Service songster, who deplorable story we have related, obtained the loan of large collection of the most joyful and simple ballads of t Halls of English music. These he deliberately translate in Irulese and Kurumbese, bringing in happy allusions the more cheerful aspects of devil-worship. His ear f music—tunes he calls it—is not very acute, but by t help of an expensive hurdy-gurdy he gave great satisfa tion to the tribes. Some of the more popular chants ha been adopted at the public devil-rites with great effe It is curious to add that his system of brightening the liv of his tribes has received great approbation from the fe Missionaries who have heard of his work, but think h song-system is based on that of Moody and Sankey.

The space at our disposal is limited, so we cannot pursu this absorbing subject any further. We entreat, however, a readers of these pages to ponder on what we have writte For to neglect the choice of a hobby is to run the danger a hobby making of you its namesake. More important f than work or play is the pursuit of a hobby, whereby yo have a pleasurable sensation of going through the outwa movements of work, delightfully conscious of only worki at play, or playing at work.

NOTES.

A record payment for tea duty. The Mazawattee Tea Compa (Limited) claims to have paid t biggest cheque ever known in t tea trade for Customs duty, amounting to over £63,000 ste ling, and £12,500 greater than any previous amount. Th cheque represents over 1,680 tons of tea, or something li one thousand million cups of tea.

High elevation teas. Among the many disquieti features of last year's market w the sensible drop, though small, in prices for high elevati teas in both India and Ceylon. Whether the public tas is changing or not we do not know, but it has been evide

at the market lays greater stress year by year on ength and fulness. Thin pungent, flavoury liquors have len from the pride of place they once occupied.

se planting of tea.

A Nilgiri correspondent of a Northern contemporary has very ious ideas on the way tea cultivation is carried on in this trict. He states that 3 feet × 3 feet is far enough apart en in the case of the luxuriant high-class hybrid. It would interesting to see what he means by "high-class hybrids." s further remarks addressed, it should be remembered, a public composed of the first tea-planters of the world delightfully naive, and will, we trust, be appreciated.

panese tea.

It is memtioned in the report of the Yokohama Chamber of Com- erce, says the *H. and C. Mail*, that the quality of the op of tea—a great staple of the Japanese export trade— s decidedly inferior last year to that of 1896, and it is ted that Indian and Ceylon teas are now rapidly gain- g an advantage in the United States and Canada, the ef markets for Japan teas. Meanwhile the restrictive asure adopted in America, requiring the quality of the imported to be up to a certain standard, has made more reful selection necessary. On the whole, the year is said have proved fairly remunerative to the Japanese tea ower, though the attempts to introduce Japan tea into ssia have not yet met with much success.

grow "A" size coffee.

The casual reader will think this heading somewhat after the fashion the London tea merchant to his son, a young tea-planter, the effect that he was to be sure and only grow Orange koe bushes. But as a matter of fact, a great deal more ld be done to grow coffee-yielding berries of extra large e than is now imagined. It is the old, old question of improvement of our stock by the more careful selection seed. Large berries picked at haphazard from any es on the estate will certainly not give any finer or better nts. But a tree which by judicious pruning and culti- ion is encouraged to bear extra fine berries, will yield d from which in course of time a fair proportion of ig-seed" plants will be found. And, in course of time, desirable qualities of the plant may become so fixed that distinct and valuable variety would result.

drop in tea spells uin!

Such is the sensational statement recently made by a well-known visit- ing agent and merchant of Colombo th regard to Ceylon tea. A drop of another ½*d.* in prices uld mean an acreage yielding 30 million pounds of tea ing suddenly out of cultivation. For the purpose of engthening the market, such a statement is reasonable ough, but of its real truth there is much doubt. The visit- g agent in question does not think much of exchange one y or the other, arguing that a rise of 1*d.* in exchange is only ual to a fall of 3 farthings in price. This logic is rather eer, for it is obvious that with an "honest rupee" of shilling exchange value, the 4*d.* drop would equal 3*d.* rise price, which would do away with the threatened ruin of industry for some years to come. However there is no ubt that he is quite right in his contention that the whole a-trade is now almost altogether in the hands of a few yers who retail direct, and combine to keep down prices.

Laterite soils.

The South Sylhet correspondent of the *Planter* thus describes the virtues of the laterite soil of his district. In South India somewhat different opinions are held on this species of soil!

"The tea gardens of South Sylhet, for the most part, have a surface soil varying from a light sandy loam to a loam and in some cases to a distinctly clayey loam. And the subsoil, for the most part, is composed of a reddish laterite soil eminently suitable for the cultivation of tea. The fertilizing qualities of this laterite soil is so well understood by the planters in the district that in some cases pits have been dug six to eight feet deep on the sides of telahs, the bushes on which were looking scragging and giving little leaf. These telahs were top-dressed with the red subsoil from the pits with marked good effect. These remarks refer to the majority of South Sylhet gardens which, for the most part, are low telah or rolling. In some of the gardens there are large flat bheels, the top soil of which is composed of almost pure vegetable matters varying in thickness. When the subsoil of these bheels is different from the surface soil it may be composed of blue clay, or it may be white clay and sometimes white sand. The chemical reasons for the different colours of the subsoils of both bheels and telahs are very lucidly explained in any of the works of our leading agricultural chemists."

Liberian coffee.

Mr. W. Turing Mackenzie writes to the *Singapore Free Press* that while Selangor this year is to export 12,639 pikuls of Liberian coffee, for 1902 the figures are estimated at 64,533 pikuls. He adds that the East Coast of Sumatra is bound to do something considerable; but if so, how does Mr. Mackenzie explain Mr. Baker and his Dutch superiors abandoning Liberian coffee for tea, asks the *Ceylon Observer*. Says Mr. Mackenzie: "Let every one interested in Liberian coffee send home a few pounds of the fragrant bean to his sisters, his cousins and his aunts, while Straits planters should urge Ceylon tea sellers to add Straits coffee to their list; there are many old Sumatra planters in business in Europe and elsewhere who would, I should imagine, gladly take up and push the sale of *Serdang coffee*. New York is a market to be captured, but, listen. An American gentleman once came to me and asked how many pikuls of Liberian coffee I could give him. I mentioned the figure—a few hundreds. 'Cayn't you multiply that by 10?' he asked. On my intimating that my arithmetical powers did not go so far, he replied, 'Waal, sir, ef you cayn't give it us, *we must make it*.' Subsequently I made enquiries as to the manufacture of Liberian coffee in the United States. The ingredients mentioned to me did not sound as if they would yield a savoury beverage."

Wood-ashes.

We publish elsewhere an inter- esting article on the value of wood- ashes as a complete mineral manure. Not only is the potash of the ashes of high value, but the phosphoric acid present, though in smaller quantities, is not to be lost sight of. Perhaps the greatest value, however, derived from the manurial use of wood-ashes lies in their caustic effect in the inert nitrogen of the soil, a fact of striking importance in forest soil.

The value of ashes is of course dependent largely on the wood used, twigs and leaves containing a far greater pro- portion of valuable minerals than solid blocks of timber. It may not strike some of our readers with what excellent effect a system of home-made ashes might be introduced on plan- tations. The connection between disease and prunings has been somewhat energetically set forth in these columns. The greatest objection to the mode of collecting and burning

the prunings was the expense of the operation. But if the prunings were burned in selected places, and the ashes carefully gathered, the value of the latter would probably be over and above the cost of collection: Especially would this be the case on tea estates where the disposal of the prunings is often a matter of great trouble. After a few trials, it would probably pay coolies well to collect the wood and burn it on contract, being paid by the ashes, at so many annas per bushel. Care must be taken that the ashes be kept dry, as moisture greatly lessens their value.

The South American Vanilla.

At the meeting of the New York College of Pharmacy held on 18th January five papers were read on vanilla, writes a correspondent to the *Chemist and Druggist*. Professor Rusby treated of the cultivation, etc., of vanilla. He said that there are thirty-three species of vanilla now recognised. The process of curing vanilla-pods and preparing them for packing was described as he had seen it done in South America. Vanilla-packers, he mentioned, are subjected to poisoning, resulting from handling the beans, the symptoms being much like those resulting from poisoning, due, he thought, to penetration of the skin of the hand by oxalate-of-calcium crystals. Dr. S. E. Jelliffe treated of the microscopic of the subject, and said unscrupulous dealers often used benzoic acid to make a false appearance of vanillin on the beans. The microscope revealed the fraud readily, benzoic-acid crystals being flattened and rhomboidal, vanillin acicular and standing out at right angles from the surface of the fruit. Professor V. Coblentz treated of the chemistry of vanillin and said it was frequently adulterated with acetanilid. Mr. A. Henning's paper was on the commercial varieties of vanilla. He said that that from the Seychelles Islands, an inferior kind, was the sort chiefly used in England. The Mexican vanilla grown at Papantla had the most exquisite odour, and was the kind used in the United States. The pharmacy of vanilla was considered by Mr. O. Kalish, who recommended an extract made from a formula containing 8 oz., of vanilla in a gallon of finished produce. He said that vanillin could never displace vanilla as a flavouring-extract, as it lacks the delicate flavour of the natural bean.

Planting in Sumatra.

From an exchange we gather some interesting details about the way in which Dutch planters manage their tobacco plantations. It is the reverse of cheerful, though, to learn that tea is beginning to be planted up, and that its initial success is most encouraging to Sumatra planters. Mr. H. R. Porter, of Messrs. Walker and Sons, thus describes his recent visit to Sumatra:—

"His purpose was to visit the first tea estate opened up in Sumatra, belonging to the Britlsh Dehi-Langkat Tobacco Company, which owns over 35,000 acres planted with tobacco. The managers and superintendents of these tobacco plantations are, of course, Dutch; but the labourers are either Javanese or Malay coolies who understand the work well, and in contradistinction to the system in force here are individually under agreement to the planters. Labour, so far as he is aware, is plentiful, and the supervision is such as to prevent, to a large extent, desertion or crimping, it being necessary that everyone who goes off the estate, even on leave, should produce a pass to the Jagar or private policeman—and there are several of these employed by each estate—who accosts him before he is allowed to go on his way. The management of the labour force is quite different from that which obtains in India or Ceylon, there being no s persons as Kanganis, and the system seems to work very well. estate which Mr. Porter visited is the first that has been opene tea in Sumatra and is under the superintendentship of Mr. W. Ba who is a former Ceylon planter and was stationed in the Bad district before he went home and was appointed to his present bi in Sumatra. It is only two years since tea was planted on the est which was formerly covered with Liberian coffee, which has been doing very well of recent years, and tea has been doing well that orders have been issued to discontinue the cultivatio coffee and devote all attention to tea. The estate was opened tea only about a couple of years ago, and some of the bushes meas from 4 feet 6 inches to 5 feet in height and ½ to 2 inches in st The whole of the country thereabout, Mr. Porter says, seems to b volcanic origin, there being a kind of vegetable deposit on the to the lava. The elevation is not much above sea level, the estat question being about 300 feet above the level of the sea, and climate approaches very much to that of the Kelani Valley. Porter went from Colombo to Penang, thence to Sumatra in a l boat, landing at Belawan, from which he went to Medan, about 2 25 miles by rail, and then rode to Diski, and from Diski trave over 12 miles of tramway which brought him to within half a m of the estate. What tea has been made has been disposed of v well locally. The only machinery at present used is a roller, Mr. Porter's visit was to design a new factory with water-power to arrange for a complete outfit to suit the estate which is about acres in extent. This has not yet been all planted in tea, but wil as soon as possible."

The London Market.

Coffee.—At the auctions a lar quantity has been catalogued t in any previous week this season, writes the *P. M. Rev* of 23rd ultimo, and as the principal proportion has consis of East India, which this year is coming in small parc the lots have been so numerous that it has been impossi to get through the whole of the catalogues, and six h been held over until next Tuesday. Although the quan has been so heavy there has been a strong demand, a prices have, in many cases, shown some advance. Of E India kinds Mysore has sold from 1*s.* to 3*s.* dearer, many the best marks realising higher rates than those obtai last year. The finer qualities of Costa Rica have a maintained their values, and, in some cases, are rat dearer, while the lower grades have mostly sold at a sli reduction. Coffee, of this growth, from 60*s.* to 85*s.* is r relatively the cheapest kind in the market, and we think hardly likely to be lower. Of other kinds Colombian sold well at full prices. In the terminal market a moder trade has been done, and prices at first advanced, but h since reacted and closed at about last week's quotations.

COFFEE SHADE TREE.

Sun-dried Erythrina Lithosperma loppings, &c., contain ton:—

61·50	lbs.	Nitrogen.
57·38	„	Potash.
14·92	„	Lime.
13·68	„	Phosphoric Acid.

Seed cured under Messrs. Sutton and Sons' advice.

Orders should be booked early for the coming crop of seed f the parent trees of above analysis at Rs.6 per pound contai about 2,000 seeds. *Germination guaranteed.*

Only thornless variety extant, and is not procurable anywhere s from the

MANAGER, ARIENKOW ESTATE,

Shencottai

LONDON COFFEE RETURNS.

—	HOME CONSUMPTION.		EXPORT.		STOCK.	
	1898	1897	1898	1897	1898	1897
For the week ended April 16, 1898.	Tons. 256	Tons. 323	Tons. 542	Tons. 412	Tons. 13,473	Tons. 12,623
For the 15 weeks ended April 16, 1898.	4,368	4,240	6,487	4,595	—	—

Indian Teas.—The market opened with a good enquiry, he bidding being brisk at the public sales, with an upward endency in values for most descriptions. The demand, owever, was mainly for the more useful kinds, and in some ases the rise is quite a $\frac{1}{4}d.$, the advance being no doubt ue to the smallness of the stocks held by the trade. This ise will most likely be maintained, and will probably be llowed by a further upward movement later on, as the tock of this class of tea will prove to be none too plentiful meet requirements. Practically all the direct consign-ent of garden teas have now been disposed of; a large umber of final invoices, especially Assams, were printed nd sold this week, and therefore the future supply of the ast season's growth from this district is likely to be xceptionally small. As these kinds have throughout the eason been the most uniform in quality and, therefore, the ost desirable for blending purposes, a shortage in the pply is almost certain to lead to an improvement in prices efore long. The common and poor liquoring sorts have old at prices about on a par with those of the previous sale, nd, although an idea prevails that a higher market is robable, the heavy stock does not appear to warrant any ise of importance. The finest sorts are gradually getting nto an extremely small compass, and the few lots offered etched advanced rates, and even at the higher prices they re inferior in quality to the earlier shipments. At the ublic sales 22,972 packages were brought forward, and nly 1,450 were withdrawn.

GENERAL ARTICLES.

TEA PESTS AND BLIGHTS.

THIRD NOTICE.

Pruning.

IN our preceding article we traced Dr. Watt's initial remedial measures as far as drainage. The next chapter is on pruning. Differing conditions of soil and climate of course necessitate a great variety in the methods of pruning. Where a like diversity is seen even in the same district and on neighbouring gardens, it shows that an appreciable portion of the difference must be purely arbitrary. In Assam some managers pride themselves on pyramidal bushes, others on saucer-shaped shrubs with branches rising from not lower than two feet from the ground. The different styles of plucking in vogue have, of course, a great influence on the style of pruning. There is a large residue of difference, though that can only be theoretically justified, the clinching argument being a reference to the profits of the garden in question. We shall not follow the author in his disquisitions on the theory of pruning; his practical remarks will suffice us. Among the greatest dangers of pruning is that of causing snags on the branches, by cutting too far above a bud. The cut, where the bud is visible, as it always is in medium pruning, should be made on as close a level with the bud as possible, in a sloping upward direction. Such a cut will heal over in the season. If the cut is made too high, the stump of wood will absorb a great deal of sap at first, and then will finally die and rot perhaps even below the bud. Worse than this, in its attempts to heal over an impossible snag, the bark will swell and protrude round the base, blocking the circulation of the upward and downward sap. As sap cannot be utilised until transformed in the green leaves and green bark, it follows that a "snagged" tree is often half dead at the base while its crown seems still green and healthy, owing to the very slow movement of the downward sap.

In all intelligent horticulture outside tea-planting, efforts to determine the final shape of the plant are chiefly made while the plant is still young. There is no reason why this principle should not be observed with the tea-bush, contrary as it may be to the accepted systems in vogue. The usual method is to let the young plant run up untouched for about three years or so, and then cut them down severely to "shape the bush." This is done to thicken the central stem, and to develop the tap root. Dr. Watt questions the use of either the tap-root or the central stem. The former can be well replaced by several slanting roots, the same transformation taking place above ground. The object of the tea-planter being to produce as much flush as he can, the production of mature wood by means of a thick central stem should be hindered as far as possible. Dr. Watt urges that the first pruning should be made in the nursery itself some few months before transplanting; if not possible then, on no account should over eighteen months elapse from the date of germination. Training, and not forcing by the harsh use of the knife, is the system advocated. Naturally up to the third year or so the unpruned bush will be far taller and more vigorous looking than its trained rival. But with the first prune of the former there is a sudden reversal of the position. For the knife has, by lopping the tall seedling almost to the ground, to force the main stem to throw out those very side branches already borne by the trained nursery-pruned plants.

It is an undeniable fact that the tea-planter has to completely change the natural habit of his plant. And the sooner he does it the better. The longer the delay, the greater will be the eventual shock to the plant.

The first pruning, in the nursery, would be to head the seedling down to 12 inches, or, if only that height, to nip out the central bud. This will check the tap-root and develop side shoots. The second year's pruning consists of still further heading back the main stem and training the side shoots. The lower side branches to be retained should be headed back to the fourth bud. The higher branches should be shortened to the third bud, and the top ones to the second bud. This will open out the bush and give it a spreading habit. The third year's pruning is merely to head back the central stem again if necessary, and cut out overcrowded growth. The side branches, however,

must not be touched. This system needs undoubted care and expense, but on this initial care most of the future health and wealth of the young garden will depend. Plucking should not be dreamt of before the fourth year.

From the third year to the time that low and collar pruning is requisite, Dr. Watt finds little to criticize in the methods current in Assam. But on collar pruning he has some remarks to make. With a large majority of plants there is a certain point known as the collar, which strictly defines the boundaries of the stem and the roots. With tea, however, roots are often just as capable in producing shoots as the stems and branches themselves, so that the fear of "going below the collar" andthus killing the tea bush is not based in fact. The usual system is when the bush is incapable of producing vigorous shoots, to cut the stem back so as to leave from 1 to 12 inches of stump above ground. From reasons already given our author is strongly against such a premium being laid upon the formation of snags, and encumbrance of old and useless wood. If collar pruning is to be undertaken at all, let it be done thoroughly. Cut the stem a couple of inches below the stem of the ground, and immediately earth over. Fresh shoots will spring up from the roots themselves and will be from the first in direct connection with their food channels, instead of having their supplies stopped and diminished by passing through old and useless wood.

THE ACTION OF MINERAL MANURES.

The value of certain forms of even the same manure differs greatly according to the soil and climatic conditions. Thus, bone meal, for instance, gives the best results in soils rich in organic matter, but poor in carbonate of lime. For the presence of much lime hinders the decomposition of the bone dust, as the solvents of the soil act more readily on lime than on phosphates. The custom of applying such organic manures as oil-cake with the bone-dust is justified by the acids evolved in decomposition acting quickly on the bones. Writing to the *Ceylon Observer*, Mr. M. Cochran, the Colombo City Analyst, remarks that the "complete nitrification of four parts of nitrogen produces 18 parts of nitric acid, which, if saturated with lime from the bone phosphate, would remove therefrom eight parts of lime, changing part of the phosphoric acid into more soluble forms. In like manner, the nitrogen of the oil-cakes by nitrification reacts on the bone meal. We thus find that the subject of nitrification, besides having a direct interest as nature's method of rendering organic nitrogen fit for plant food, has also a collateral interest, as assisting in the process of rendering the more stable phosphates, such as bone-phosphate, available for plant food. It is interesting, therefore, to note the results of some experiments, on a small scale, published by Ph. Boname on the rate of nitrification of the organic matter in a typical soil of Mauritius, and of certain nitrogenous manures, all of which are used in our Ceylon tea-soil. The Mauritius soil is rich in nitrogen, and poor in lime, and the climate favourable to nitrification. In the unmanured soil, nitrification was greatly promoted by an addition of carbonate of lime, and still more so by caustic lime. The nitrogenous manures experimented with were sulphate of ammonia, dried blood, oil-cake and fish guano; and the result of a series of experiments, without addition of carbonate of lime or lime, showed that fish guan nitrified the most readily, then cake, then dried blood, an last of all, sulphate of ammonia, which nitrified very slowl The rapid nitrification of fish guano explains why tea re ponds so readily to this manure. Boname remarks th 'probably nitrification is assisted by the presence of calciu phosphate and carbonate in the organic manures.' Ce tainly, when chalk was added along with the nitrogenou manure nitrification was hastened in every case, the ord of nitrification being then sulphate of ammonia, dried bloo oil-cake, no experiment with fish guano being recorde I note, however, that in this experiment the chalk wa added in very large proportion, viz., 5 per cent. of the soi The slow nitrification of sulphate of ammonia in the absen of carbonate of lime, and the beneficial results obtained b its application to crops, are regarded by Boname as sup porting the view that, under some conditions, plants ca directly utilise salts of ammonia. Seeing then that lim or carbonate of lime hastens nitrification, and liberate potash, an explanation seems to be required why th general experience of tea planters is unfavourable the liming of tea soils. The only chemical reason whic suggests itself to me is that, by liming, the available phos phoric acid is not increased *pari passu* with the potash an nitrogen. Little, therefore, of the extra potash will b utilised, and much of the nitrogen wasted as, when nitr gen has been turned into nitrate of calcium, it percolate through the soil gradually and is lost with the drainag water. Mr. Baur, whose articles on manuring have bee read with much interest, is quite correct in his view tha by the use of phosphate and of potash in readily availab forms the proportion of nitrogen in manures may be re duced. This may be regarded as a general principle i manuring; and, now that soluble phosphates and salts o potash have been brought within reach of the planter, ought to be made matter of experiment how far the genera principle enunciated is applicable to a perennial leaf-cro like tea. Several of the experiments with Thomas' phos phate powder suggested in the pamphlet published b Messrs. Freudenburg and Co. have this for their object, t see how far the nitrogen in tea manures may be reduce by the use of Thomas' phosphate powder and sulphate o potash; thus, four of the experimental mixtures contai each only about two-thirds of the amount of nitrogen con monly used; one contains only one-third of the amoun and one contains no nitrogen at all.

"Mr. Baur's fertilizers for tea supply phosphoric acid i a different, but very available form, together with salts o potash; and, although the nitrogen is in much smaller pro portion than in the tea manures commonly used, it i nevertheless, greater in amount than in the manure recommended and used with success for cereals, whic take up fully as much nitrogen from the soil as averag crops of tea. The great advantage of phosphates solub in water is their initial diffusibility through the soil. The gradually relapse into the less soluble forms, but in a ver fine state of division, readily acted upon by the acids of th root fibres or hairs. I might cite one instance whic appears to me to tell in favour of using more availabl phosphatic manure than bone meal, together with a reduc tion in the proportion of nitrogen in manures. A sho time ago I had a soil to analyse from a very fertile te estate, yielding in years of good rainfall over 1,000 lb. dr

per acre. I naturally expected to find this soil very
n in nitrogen; but, on the contrary, the nitrogen was
rcely of average amount; but the soil was rich in phos-
oric acid and potash. The soil was a fine red soil, con-
ning a good deal of oxide of iron and alumina; and,
nough the soil was in a fine state of division, it allowed
ter to percolate through it with sufficient freedom to
ure very good aëration. It was a soil evidently well
ed to ultilise the natural supplies of nterogen."

LIBERIAN IN THE STRAITS.

(*Concluded from page 229.*)

nters' Associ-tions. As it was with the bundle of sticks, so it is with the planters: as long as they keep together, the Planters' Association as one body will be strong; moment Government has to deal with each planter individually, planter will be nowhere. But it would be quite a mistake to ge from the foregoing remarks that I advocate the formation of a nters' Association for the sole object of defending their rights inst Government. No; the chief object of a Planters' Association, ording to my humble opinion, is to enable the young planter to that support, advice and assistance which he is so much in want and to achieve by united efforts what one alone would never be e to carry out.

f the planters would put their capital together and start one ing establishment. where the crop of all the members could be ed where each member could get his parchment peeled at a rate ich would just cover expenses, they would show to everybody at united strength could do, and they might even make the estab-ment pay handsomely by curing the crops of those who are not mbers of the Association at a higher rate—this would also, at same time, show each member the advantage of belonging to the sociation; but they won't do it. They prefer to erect their own arate establishment and to pay $10,000 each, where united they ld do it at a cost to each of perhaps one thousand only.

f the planters would unite and use their united influence they ld start a bank to advance money to deserving young planters; y would by doing this render a great service to many a young ow who must go to the wall now simply because he cannot raise a dollars at a time when he needs them, although his property may worth ever so much. Up to this present moment there is no nce for a planter in the Native States to raise a cent on his pro-ty. If they would do something of the kind they could make it very well indeed, without running the slightest risk, and also der to the State a great service by saving many a promising planta-n, which is now bound to be ruined and to be abandoned; but y won't do it. They let each poor fellow paddle his own canoe, if he capsizes and stretches out his hand in despair for some one save him, offers all he possesses—all his money, all his property y to save him from ruin—they won't do it. He may die and ish!

There are hundreds and thousands of things which the Planters' sociation could do; but they don't do them.

There are a few members who look upon the Association as their n "show," disregard rules and regulations when it suits them and tack others when they open their mouth to speak for the benefit of e planting community. The majority of the members don't take fficient interest in their own affairs to take any active part in any cussion. Others are sound and useful men, at least they could be d might be; but as one of them said to me, "I dare not get up d speak out of fear that the fellows would laugh at me." Others nsider the Association the means of improving their social position, meet all the big planters on equal terms and afterwards have tiffin th them. Others think this a splendid chance to worry and to noy Government about everything, and to say and to do spiteful ings under cover of the Association, which they would never dare say on their own responsibility.

But because the Planters' Association has not yet done any great ngs, it is no reason why it should not do them in the future, and it uld be a great mistake to look on the Association disparagingly for any young planter to keep out of it.

Every planter should join the Association, and Government should courage it in every way. The Association may be able to render very valuable services to the Government, and one great service the Association has already rendered to the State—it has advertised the place. All the new planters who have lately come to the State and taken up land in Selangor have been attracted, not by any liberal terms offered by the Government, but simply and solely by the trumpet blown by the Selangor Planters' Association.

Government. Besides the many accomplishments which a planter must possess to make the cultivation of coffee a well-paying concern and a success, he has to depend to a great extent upon circumstances which are entirely beyond his control.

The selection of the soil may be his own (even the richest of soil requires all the planter's skill and care after a couple of years), but he can't rule the weather. Neither can he command the Government to render him such assistance and encouragement as he may think are necessary to make his enterprise a success. Of course, having like a careful planter selected his own land, he will not start planting in a district where the Governor, or the Resident, or the District Officer throws obstacles in his way; but Governors, Residents, and District Officers don't stay for ever in the same place, and in the last few years we have seen several different Governors and new Residents, and, as far as the District Officers are concerned, they seem to have been changed almost every week.

It has often been a puzzle to me how a district or a State can flourish where every official, as soon as he begins to know his district and the people a little, is replaced by a new man, fresh to the place, and who often distinguishes himself by reversing everything his predecessor has done. The secret of the success of the Native States must be in the stability of their inhabitants—that is, mainly the planters, and as long as they remain it does not matter how often the direction of Government is placed in fresh hands.

The interests of both the planters and the Government go hand-in-hand, and where the Government find it to their interest to encourage and to assist the planter, they do it. Be it therefore said, the Government of Selangor and others of the Malay Peninsula consider it to their interest to encourage planting, and they have always done so; in days gone by they have given great financial assistance to planters, and have, I believe, in many cases experienced some difficulty in recovering their capital or even interest. Yet the planters are not satisfied, but are always at loggerheads with the Government. It is the same everywhere.

But in justice to our Government let it be acknowledged that it is a fair, just and liberal Government—a model Government compared with others. In Sumatra, for instance, the planters are under Dutch Government, which draws millions of dollars of revenue out of the country and the planters; but the Government does nothing, and has done nothing, for either.

Here we have good roads, good courts, police and every protection; transfer of land or other transactions are effected without any delay; you can meet the Government officials in their offices during business hours; Government has provided a Rest House in every district, and if a planter wants to see his District Officer, he need not be afraid of having to sleep like a beast in a stable, Government has provided a decently furnished house for him, and the planter has only to come to find everything that is necessary to make him feel comfortable and at home.

Further, the Government has provided qualified dressers and certified medical men, and in every district there are excellent hospitals, well kept and well managed, all at the expense of the Government—and these advantages the planter gets for nothing, gets it free from a Government which as yet has not derived any benefit from planting, but which with wise foresight does all this to attract and encourage planters, well knowing that agriculture will open up the land and that any capital spent in encouraging planters to settle in the State will not be wasted or thrown away, but will ultimately prove a good investment aud bear good interest to Government.

Government! It is such a nice expression, it is such a convenient word: we say "Government" in the same way that we say "Providence"—there is a power, we know it exists and we see the figures move, but the man who pulls the wires sits behind the scene and is beyond our ken. Who and what and where is this Government? The Government is the owner of the State, all officials are only the servants of that Government! the Government of our little State is under the Governor of the Straits Settlements, but the Governor, S.S. says he can only advise the Government of H.H. the Sultan, and the Governor again is only the servant of the

Government and gets his orders and instructions from "Home" and the Government at home—well, look here, I give it up! If you want to kick the Government, you will find it a very difficult matter to locate its body. Therefore, always try the other thing; if you want to praise the Government you will never have any difficulty in finding one who is willing to take the responsibility upon himself, and if the State has gone ahead and flourishes through agriculture —well, the planters have not done it: it has been done through the wise policy of the Secretary of State, the liberal and generous Government of H.E. the Governor, the encouragement given and sympathy shown to the planters and tact and diplomacy exhibited by the Resident, the justice and fairness shown by the District Officers, the untiring zeal displayed by the Commissioner of Lands. At the same time, let it be understood that the Government consists of human beings like ourselves, some of them with more brains and less "frills" than ourselves, others again with a maximum of "frills" and a minimum of brains: but, on the whole, a lot of unprejudiced, fair-minded, honest, straightforward gentlemen; and I must give them the honour that is due to them, that whatever they do, they do it with an honest intention, working hard to the best of their conviction for the welfare of the Government entrusted to them—but they are weak, human beings like ourselves, and they are liable to make mistakes. One official will follow one system and another will follow another. It is the same with us planters; we may work hard for years and only find out our mistake when the coffee fails to give us the return which we expected; we did our level best, but we made mistakes because we did not know any better, and thought that what we did was the right thing to do. It is so with the Government. One Governor will think it a wise policy to give planters as much land as they want on liberal terms; another will think it right that they should only get 320 acres and that they should have to buy it by public auction at an upset price and a premium. One Governor will give the planters medical assistance free; another will force them to keep their own hospitals, dispensaries and doctors. One Governor will carefully abstain from interfering between the planters and their coolies; another will pass rules and regulations for the better protection of both parties—whether either wants it or not has nothing to do with it. One Government official will think that he is there to assist the people in every way and consider himself in the service of the public; another, again, may consider himself the ruler of the people, placed there by Government and providence to represent Royalty and God Almighty himself, and to keep us in order and to see that we pay our respects and our taxes regularly to our Government in heaven and on earth, and to watch that all rights and privileges are reserved for future generations, and nothing for the living people, who are so selfish as to expect something for themselves.

One official may think it a good policy to give us a voice in matters concerning our own interests and the State we live in; another may think that it would only lead to confusion to grant us any political rights (such demands are only supported by Jameson in the Transvaal); and so far the result has shown that, although we have no voice in our Government, not even in electing our own municipality or even the President of our own Club, the State has gone ahead, and everybody seems to be happy and satisfied under the rule and protection of Government, and if planting is not a success in this country, it will not be the fault of "our" Government, which is only too anxious to encourage planters to settle here and to give them every reasonable assistance.

WAR AND PLANTERS: CINCHONA.

WHAT is the probable effect of war on home and foreign trade? asks the *Chemist and Druggist*, and then replies to its own question as follows:—"Prices will go up," makes the easiest reply; but it is a remarkable fact that the produce-markets have so far been little affected by the belligerent attitudes of Spain and the United States. Affected, that is, as regards upward movements in prices. Wheat is practically the only article which has been visibly affected in that way; nearly everything else has been at a standstill, and for the moment there is no sign of abnormal activity. For actual stagnation of trade in the first hands there is nothing so effectual as rumours of war, which are positively worse from a commercial point of view than war itself. War is costly, wasteful, ruinous; b unquestionably makes business hum—creates a legitimate de for some articles, and a speculative one for others. It acts o body commercial like alcohol on the body physical. Quinine i recognised war-chemical. During the past seven days the alk has been growing steadily stronger. Second-hand sellers hav manufacturers' prices and the market closes firm. The impre is that the prospect of war warrants the second-hand activity. quinine will be dearer is almost certain, but whether it will be dearer depends on the course the war takes. If United States' t are landed in Cuba they will require enormous supplies of qui General Weyler has told us that fever will kill half of the U States men, and he will be responsible for the rest. Quinine fair example of many articles, unconnected or connected dir with Spain and the United States, which are pretty sure to go h in war. Assuming that war takes place, and Cuba is the centre not many Spanish commodities which druggists are intereste will be affected. Saffron is the most important. But there many United States products which already show signs of ri Cascara sagrada and peppermint oil are amongst the heavie them, and they are being quietly bought up at good values. fornian honey, senega, serpentary, podophyllum, and other Ame roots, as well as many South American drugs which we get *viâ* York, will be in shorter supply towards the end of the year, i United States makes an army of the poor labourers who devote lives to the collection and distribution of such articles. Immed scarcity is not anticipated, because the carrying-trade betwee United States and Europe is chiefly by British vessels, and it is that our Government will secure the freedom of the British flag, although Spain and the United States are not parties to the i national agreement which protects the vessels of non-bellige nations. Both the United States and Spain are bound to be custo of this country for what may be called emergency-goods. former has a vastly greater manufacturing capacity than it had i time of the Civil War, so that no conclusive inference can be d from the experience of that epoch. Then both of the combat were immense buyers, and not a little proportion of the purch was sunk in the sea in the endeavour to get them into Charles Speculators lost their money, but producers reaped profit all same. Surgical instruments, lint, and antiseptic dressings among the leading sundries which will be in demand as soon as commences, and English manufacturers will share in the or Chloroform, morphia, portable foods, and other articles which ca readily thought of will come into exceptional demand and both s will require them. It is not pleasant to think that we are to be by the cruel struggle which seems bound to result, butit is at better than suffering by it.

WOOD-ASHES.

EVERY intelligent gardener knows the value of wood-ashes fertiliser, and until a comparatively recent period wood-ashes really almost the only commercial manure that was procurabl America, artificial manures not having come into use in that cou But it is somewhat remarkable that the value of wood-ashes and beneficial results of their application to the soil are gene attributed solely to the potash which they contain. Undoubt potash is an indispensable food for plants, and its applicatio crops is usually marked by conspicuous results. Those garde however, who have had long experience with potash in the for wood-ashes, and also as potash salts or kainit, find that the latt not so marked in its effects as the former. The fact is, tha recently remarked by Mr. S. Macon in the *American Agricultu* wood-ashes are really a mixed fertiliser, and a complete one s as the mineral elements of plant-food are concerned. This mus apparent to anyone who considers that they are the whole res of plants after being burned except that part which returns to atmosphere from which it was originally procured.

The nitrogen and the carbon of trees alone are thus wantin the ashes, which contain everything else required by plants. T it is only reasonable to infer that the benefit derived from a dres of wood-ashes to any crop must be due to the other element well as to the potash.

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Do. 9½″ x 5,″ 3¼ „ „ ... „ ...			
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Seamless Bags (for coffee transport to coast) 42″ x 20″ „ ...	9	12	0
Shovels, round nose, T handle ... ... „ ...	12	12	0
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Lombard St.

[w. 15-11-98.]

Of course, the value of ashes may vary considerably according to eir source, though practically this variation is less than would be pposed at first sight. Ashes are richer or poorer in potash and her useful ingredients according to the kinds of plants from which ey are obtained, and to the character of the soil on which the ants grew. Also it is found that the value of the ash varies cording to the parts of the plant that have been burned. The hes of twigs (faggots for example) would always be worth more r horticultural purposes than the ashes of heart-wood taken from e middle of an old tree: and in general the smaller and younger e wood burned the better the ashes.

Taking what is known of the composition of the ashes from young igs and that from heart-wood which has fully matured, one would y that the proportion of potash in ashes may vary from 5 to 20 r cent. But a much better criterion of the real composition of hes is afforded by the experience of potash manufacturers, according whom a bushel of wood-ashes weighs about 48lb. on the average, d yields rather more than 4lb. of potash salts. Professor Storer s investigated this question somewhat in detail, and was found the analyses of a number of samples of wood-ashes that selected ecimens contain $8\frac{1}{2}$ per cent. of real potash and 2 per cent. of osphoric acid; or say $4\frac{1}{2}$lb. of potash and 1lb. of phosphoric acid r bushel of ashes. Hence there is enough potash and phosphoric id to make the bushel of wood-ashes worth from 10*d.* to 12*d.*, and sides that, some 5*d.* to 7*d.* additional may be allowed for the alkali power" of the ashes. This may be explained as the force of kalinity which enables wood-ashes to assist in the rotting of weeds nd to ferment peat.

[The average percentage composition of 25 descriptions of trees 5·5 per cent of potash, 34·3 of lime, 1·9 of phosphoric acid.]

The barks of trees are still more rich in lime than in potash than the above percentages. And as all plants contain lime, this ement of the ashes should be taken into account, as well as the her ingredient, for it is known that the production of nitrogenous ant-food goes on most easily in soils that have a considerable roportion of lime in them. Indeed, it may be said that this supply lime is indispensable to the action of the nitrification bacteria, hich must have lime within reach for its proper development.

ACTION OF POTASH ON SOIL-NITROGEN.

An objection is sometimes made to wood-ashes as a manure for orticultural purposes that the plants to which they are applied row coarse. This may be due to the nitrogen supplied to the plant the action of the potash on the humus of the soil. This power of otash to make the nitrogen of the soil available for plants is a luable one, and is strikingly shown in clearing wooded localities. or wherever a heap of wood and scrub is burned, it is noticed that egetation afterwards is apt to be particularly rank and luxuriant recisely where the largest quantities of ashes are lying. This nkness of growth is doubtless to be attributed first to a super-undant supply of nitrogenous food brought into activity by the d of the ashes, though it is believed that the spots charged with kali from the ashes are in many cases better supplied with oisture by capillary action than the surrounding portions of round.—*Gardeners' Chronicle.*

DISTRICT ASSOCIATIONS.

SHEVAROYS.

PROCEEDINGS of the Monthly Committee Meeting of the Shevaroy lanters' Association held in the Victoria Rooms, Yercaud, on Monday, e 2nd May, 1898.

PRESENT:—Revs. J. M. Kempf, M. Andersen, Messrs. J. C. Large, . Rahm, S. M. Hight, C. G. Lechler (*Chairman*), R. Gompertz (*Honorary Secretary*).

1. *Read* Notice calling the meeting.

2. *Read* letter from Mr. Sice resigning his seat on the Committee nd his Membership of the Association.

Resolved that Messrs. J. H. Short and H. B. Evans be invited to rve on the Committee in lieu of Mr. Sice and Mr. Leeming, who ave resigned.

3. *Read* Correspondence *re* supply bills and the stoppage of ncashment of currency notes.

Resolved that the Honorary Secretary be requested to write and ggest that as Government object to charge a commission on cash-g currency notes, the Accountant-General be requested to issue supply bills of Rs.100, 200 and higher denominations to the Deputy Tahsildar of Yercaud and empower him to sell them for notes on payment of 1/8 per cent. commission: and that if this cannot be conceded, he be requested to empower all Treasury Deputy Collectors to issue the supply bills to meet the case of those planters who get their money from Coimbatore, Calicut, etc., etc.

4. *Read* letter from Agent and Manager of the Madras Railway agreeing to stop the mail trains at Kadiyampatti in compliance with Honorary Secretary's request, and Honorary Secretary's letter to him conveying the best thanks of the Association for his action and promptitude.—*Recorded with satisfaction.*

5. *Read* letter from the Secretary, U.P.A.S.I., asking us to nominate witnesses before the Currency Commission and Honorary Secretary's reply nominating Mr. Leeming.

Resolved that the Honorary Secretary be requested to submit the name of Mr. H. Gompertz to the Secretary, U.P.A.S.I., as one of the witnesses before the Currency Committee.

6. *Read* Circular from the D. A. G. M. to Chairman of the U.P. A. S. I., enquiring if he could raise subscriptions for a shooting match to be called the Coffee Planters' Stakes, or any other name preferred, to be shot off at the next meeting of the Southern India Rifle Association.

Resolved that the Honorary Secretary be requested to circulate the letter and to invite subscriptions.

7. *Read* and *Recorded* letter from Secretary, U.P.A.S.I., *re* the Ladybird scheme and expenditure thereon up to 21st April, 1898.

Read and *Recorded* letter from the Secretary, U.P.A.S.I., asking us to approve of the action taken by the Chairman in regard to the Currency question and Honorary Secretary's reply thereto approved and confirmed.

8. *Read* letter from Superintendent, Police, demanding payment of Rs.18-8-3 for special constables employed to prevent coffee stealing till the 15th instant.—*Recorded.*

C. G. LECHLER,
Chairman.
ROBERT GOMPERTZ,
Honorary Secretary.

NILGIRI.

AT the Annual General Meeting of this Association, held in Ootacamund on Friday, the 13th instant, the following members were present:—Messrs. E. G. Windle (*Honorary Secretary*), W. L. Edmiston, J. Stanes, J. H. Roscoe, L. W. Gray, J. H. Wilbraham, D. W. G. Cowie, G. Romilly, Aboo Mohommed Sait and two others.

Mr. J. Stanes was called to the chair.

The two most interesting items on the Agenda were, says the *Madras Mail*, the reading of the Honorary Secretary's report for 1897 on the work of the Association during that year, and the perusal of the correspondence connected with the Currency question. On the latter, by invitation of the Honorary Secretary, Mr. Romilly made a speech, which is appended.

The following report by Mr. Windle for 1897 was adopted:—

CHAIRMAN AND GENTLEMEN,—I have now to place before you the Annual Report for 1897. At the end of 1896, the number of members was 68; during the past year we lost 6 of these, 3 resigned, 2 left the district and 1 died, leaving 62, but 12 new members having joined during the year, our members now amount to 74. The Association accounts show income amounting to Rs. 5,369-3 and expenditure amounting to Rs.4,801-6. If the general expenses should appear large, I would remind the Association that including the various funds which were started during the year more than $2\frac{1}{2}$ times as much money was collected as was the case in 1896, and consequently there was a considerable increase in expenditure on printing, postage, &c. The accounts have been audited by Messrs. Deane and Morgan and are laid on the table. During the past year, the Report of the Committee of Enquiry was issued and referred by the Madras Government to the U.P.A.S.I. for consideration. In deference to the wishes of Government, this was done in Committee and the Report was returned on the 13th August with a letter embodying the views of the U.P.A. We now await such action as Government may be pleased to take in the matter. The proceedings of the U.P.A. were fully reported at our meeting held on the 26th November, 1897; it is, therefore, unnecessary to review them again, but the results of some of these proceedings should be placed on record.

Mr. Newport has been despatched to Australia, where he has been engaged in collecting ladybirds which attack green bug and other scale pests. The scheme for getting an Agricultural Chemist for planters has fallen through, for the present, owing to divided interests, but indirectly some good has been done. One firm of curers has, I understand, obtained the services of an Assistant trained to analyse, and another firm took advantage of an Assistant's holiday in England to have him also put through a course of analysis. The Mysore Government has held out some prospect of employing a competent analyst, who would be more or less at the service of planters, and it may be said that planting public opinion has been fairly roused to the importance of scientific help. But if real good is to result, it must be recognised that the planters' interests cannot suffer by an attempt to divide or link them with those of a firm or of a Government in such a matter. Regarding the experiment of endeavouring to import labour from famine districts, it can only be said to have proved a failure; the immediate cause being the rain which fell after the gangs had been collected and which enabled them to get work in their own districts. A useful concession to planters amongst other cultivators is the abolishing the necessity of upkeep of internal boundary stones, where adjoining fields are similarly assessed. The season for coffee has been, on the whole, an excellent one, as far as yield is concerned, if we except the Western slopes. In several cases estates gave higher yields than they have ever done, and outturn from the cherry was good also, whilst parchment ran about the average. These favourable circumstances, however, were largely discounted by the heavy fall in prices caused by overproduction in South America; the fall in the case of coffee amounting to from £30 to £40 per ton, and the rise in exchange which we are now suffering from. The result is that cultivation expenses are everywhere being reduced, which in turn must react upon crops. Leaf disease was not nearly as troublesome as in the previous year and scale pests were also better.

The calendar year 1897 cannot be said to have been a favourable one for tea planters. The rainfall generally speaking was up to the average of the Hills, but the average number of rainy days was fewer than in 1896. The almost total failure of the N.E. rains prevented estimates, in many cases, being realised. In other products the high rate of exchange and low prices in Mincing Lane operated prejudicially. Really "standing out" teas always appear to fetch full value, but the large quantities of what may be termed "medium" teas from some of the N. India Districts, as well as from the low country in Ceylon, where heavy yields and low cost of production are aimed at rather than teas with character, have brought this class of tea to what, it is hoped, may be the lowest price it will reach. Nilgiri producers should congratulate themselves on being able to dispose of a certain amount of their produce in India, and should endeavour to extend their sales, more especially in the Bombay Presidency. It must be noticed with regret that some high-grown teas from this district have been sold in the London market at very low average rates per pound. This must not only be a loss to the producers, but is calculated to bring Nilgiri teas into contempt in Mincing Lane, and while not in any way wishing to interfere with private individuals in the management of their own estates, there is an absolute necessity for tea proprietors not only keeping up to date in the equipment of their factories, but also of giving their managers ample withering accommodation which in many cases is lamentably deficient, so that Nilgiri tea must be looked on by brokers and buyers as of the "stand out" order rather than the "medium" type, a position in which they once became classed and which it will be no easy matter to raise them from. From the elevation they (Nilgiri teas) are grown at, the climate and the nature of the soil, the teas from this district are entitled to rank amongst best growths, but these natural advantages are of little avail if not backed up by adequate withering room, proper factory arrangements, and, we might add, constant and competent European supervision.

The thanks of the Association are due to the Police authorities for the trouble and care taken during the coffee season to prevent thefts, the district being very effectually watched. Our various Collectors have also individually earned our thanks, though it must be obvious that the keleidoscopic changes of officials, which occur in this and the Coimbatore District, cannot tend to a continuous and rapid despatch of business.

In conclusion, I beg to place my resignation with that of the Committee in your hands.

On the Currency question Mr. Romilly spoke as follows:—

CHAIRMAN AND GENTLEMEN,—Your Honorary Secretary has very kindly given me permission to address you to-day in my capac of Chairman of the U.P.A.S.I. on the subject of the Curre question and the steps that I have taken on your behalf with reg to it. I will, therefore, give you a short *résumé* of what has tal place during the current year. In January, as you know, the co tion of the money market was intolerable, and such of you as n have had to borrow will know that it was an uncommonly diffic task, and money was unobtainable except on the very best secur and even then at extortionate rates. It was felt, on all sides, t the present policy of Government was doing harm to trade, and Madras Chamber of Commerce addressed the Government of In on the subject and advocated as a remedy the adoption of what called the Lindsay Scheme, whereby the exchange value of the ru will be fixed. On reading this I thought it my duty to protest once on behalf of the producers. There was no time for delay or refrence to the Committee, so on my own responsibility I addres a letter to the Finance Minister protesting against a fixed ru and suggesting that the true solution of the difficulty was the opening of the Mints, and that Government should recoup the selves for their own losses in so doing by imposing a direct exp duty on produce. This letter elicited a singularly petulant a weak criticism given in the columns of the *Madras Mail* by one w was called by the Editor an acknowledged authority on Ind Finance. Now, this authority showed that he had completely mis the whole point of the case by saying that some industries, such sugar, could not stand an export tax, oblivious of the fact that already was taxed and that we were asking for a diminution inste of an increase in the tax. In fact I think that the *Madras Mail* c not treat us with its usual courtesy in publishing such a criticis written not in a judicial spirit, but with all the rancour of partisansh

Later on, in March, the Bombay Chamber of Commerce in a ve excellent letter, as I thought, also addressed the Finance Minis and suggested a Commission of Enquiry before anything furth was done. As soon as I saw that this Commission was to appointed, I at once wired to Calcutta asking that our views mig be represented before the Commission, and an answer came ba that our letter of the 4th February had been sent to the Secreta of State, and asking if we wanted further representation witnesses. At that time a public meeting of all classes was he in Colombo to protest also against the present Currency policy India, and the result of it was that the Ceylon Government wir Home asking that Mr. Christie might be allowed to represe Ceylon as a member of the Commission. I then wired to Sim asking that Mr. Acworth might be allowed to represent us either a member, or at any rate to give evidence, but I am sorry to s that although, presumably, Mr. Christie and Mr. Acworth will allowed to give evidence, neither of them has been nominated as member of the Commission. I am the more sorry for this, for far as I know there is no one on the Commission interested sole in the growing of produce. Sir J. Muir, doubtless, represents very big tea interest, but then he also has many other interests his own to look after. I am sorry that the Commission is not ma up more largely of unbiassed experts, for when a question of th sort arises which affects the individual pocket, it seems impossib to prevent self-interest affecting the judgment, as is shown by t recent proposals put forward by the Government of India, whi entirely ignores all other interests but its own. After all, all th we want is justice and a fair hearing, and I do believe that at lea we are likely to get this latter. After we had nominated Mr. Acwor as our representative, we received a telegram from a Capta Marriott in Simla, who said that he coincided in our views that t Mints should be opened, and an export tax if necessary impose and that he was willing to go Home and represent us. But havi already nominated Mr. Acworth, I declined his offer with thanks.

In my letter to Mr. Acworth, I have given him a perfectly fre hand, but I have suggested that if he finds that it is useless to urg the reopening of the Mints, as it would seem to be from the utte ances of Lord George Hamilton and Sir James Westland, he shou try to effect a compromise, and if the rupee is fixed in its exchan value, it should be fixed at the rate now ruling in Japan and t Straits, which is at 1 shilling. I am glad to see in the papers th Sir D. Barbour also advocated that the rupee should be allowed drop nearer to its true value before being fixed. I have also urge on Mr. Acworth that he should work in union with Mr. Christ of Ceylon. The Ceylon Planters' Association in answer to ou circular said that, as the Ceylon Government was not in financi difficulty, the question of an export tax did not affect them. But

e made it quite clear to Mr. Acworth that we do not want to ndicap the Indian tea trade with an export duty in favour of rlon, as, though, at the present moment, we are both heavily taxed, we are competing on terms of equality. Some suggestions have ely been made to me by means of the Committee, which I have not ed upon, partly because I think them unnecessary, and partly ause they came too late. One was that we should urge on Gov- ment and take evidence among planters out here on Commission. t as we have a number of able planters at Home whose names I e sent to Mr. Acworth, we should be able to prove our case, and, reover, I doubt the policy of making a request which would pro- ly be refused. Another suggestion was that a Committee in ndon to watch our interests be appointed, but as I had already en a free hand to Mr. Acworth, I did not consider it wise to go k on my previous instructions. You will easily understand that oughout these transactions there has been no time for hesitation l, in consequence, I have had to act entirely on my own responsi- ty even to the extent of committing the U.P.A.S.I. to consider- e expense without sanction of the Committee. I know that it is possible to please every one, especially in a difficult matter like s, but I can only trust that my action will have met with the ap- val of the majority of District Associations and of the general ly of individual planters.

I should like here to testify to the very valuable assistance that I ve received, throughout these negotiations, from our energetic cretary, Mr. Ormerod.

A vote of confidence in Mr. Acworth as the Planters' representative the London Currency Commision was asked for and recorded.

Messrs. Edmiston and Windle were elected delegates to the next nual meeting of the U.P.A.S.I. at Bangalore, while on the posal of Mr. Edmiston, seconded by Mr. Wilbraham, Mr. Windle s nominated Honorary Secretary for the current year, an office ich he notified his willingness to accept. It was resolved to quest the present Committee to continue in office during 1898, h the exception of one member, who had during the year sold his ate and hence was no longer a planter, and the addition of ssrs. Bell and J. Stanes on the proposal of Mr. Edmiston.

The Association resolved not to take any action on Mr. Kindersley's position for the registration of small native estates and crops, d on the Hon'ble Mr. H. P. Hodgson's suggestion, it did not feel led upon to express any opinion on the proposed amendments to Criminal Procedure Code.

Regarding the deputation of Mr. Newport to Australia for the lection of ladybirds, the Honorary Secretary informed the meet- that the gentleman had proceeded to his destination with letters recommendation from Government, which had the effect of keeping wn expenses. The funds, it was said, that had been advanced to on starting were quite sufficient and would hold out till his return India with a consignment, which it was expected would be at the d of the current month. An enquiry elicited the information that . Newport was on leave from his employers without pay, and ring the time he was engaged collecting ladybirds in Australia uld receive £25 from the ladybird fund. In this connection, . Edmiston asked if any member was able to give the results his observations on the action of ladybirds, remarking that his own tea, on which black bug appeared and disappeared, the ybird was present simultaneously. He thought every member ould state just what he observed. The Chairman remarked that his estate on the Pulneys, the ladybirds in crowds appeared with bug. They were of a shining black, and branches with bug and ybirds were exhibited at Bangalore to members of the U.P.A. . Edmiston said his ladybirds were yellow. Mr. Oakes' ladybirds Seegnor were black with red spots. Mr. Gray noticed a strange ect in his direction, half way down the ghaut, which did not fly.

The last subject that was considered by this meeting was the appearance of letters in the Nilgiri Post Offices. Several letters porting loss were read, of which the most important was one from Kodanad Estate, which complained of the disappearance of a eque as well as of a letter. From enquiries instituted, it was ablished that there was no failure to post the letters that did not ch their destination, so that the Post Office was clearly solely ponsible. The Association passed a Resolution to address the stmaster-General, requesting that special enquiry should be made garding these losses, on the proposal of Mr. Gray, seconded by the norary Secretary.

With a vote of thanks to the Chairman, the meeting concluded.

MARKET REPORT.

COFFEE.

Messrs. R. J. Rouse & Co's Weekly Coffee Report (April 29, 1898) says:—Heavy supplies have again been brought forward in Public Sales and the good demand still continuing the market remains very steady.

Nearly 8,800 bags East India were catalogued which attracted keen competition, desirable Home Trade marks realising extreme rates, whilst the common and medium qualities sold at fully last week's rates.

Large quantities of Costa Rica were offered and nearly all disposed of at firm prices, whilst fine colory parcels show an advance of 1/- to 2/-.

The terme market has been firm this week on reduced Brazilian stocks and dearer cost and freight offers, and quotation mark a rise of 1/- to 1/6 since our last.

Messrs. Wm. Jas. and Hy. Thompson's Report of the Colonial Markets for the Week ending April 27th, 1898, says:—Bank rate 4%. Bombay Exchange closes at 1s 4d. Brazil Exchange 5 1/16d. Rupee paper 3½% 61⅞. Silver 26⅛d per oz.

Supplies of all kinds which continue to be freely catalogued have again met with a good demand, full prices being paid for all the better kinds, and there being more competition for ordinary and common at steady prices. Fine East India realized extreme values.

Brazil markets are about steady.

Daily receipts averaged 6,600 bags in Rio and 8,500 bags in Santos.

Futures have continued quiet but steady, and close 3d to 9d per cwt. dearer, viz.:—Good average Santos in Havre, May delivery, fcs. 35.75, in Hamburg pf. 29, and No. 7 low ordinary Rio in New York $6.05.

To-day's London official quotations are:—

	May	July	Sept.	Dec., '98.	Mar., '99.
SANTOS ...	28/6	29/3	30/-	30/6	31/-

We quote:—

Ceylon, mid to good mid.	96/@107/	Costa Rica, mid. to fine...	72/@106/
Do. small to low mid.	80/ ,, 93/	Do. ord. to low middling.	46/ ,, 70/
East India, mid. to good mid ..	77/ ,, 92/	Jamaica, good to fine ord.	33/ ,, 51/
Do. small to low mid.	60/ ,, 75/	Do. greenish to fine colory...	70/ ,, 125/
Guatemala, mid. to fine...	70/ ,, 96/	African ...	26/ ,, 29/
Do. good ord. to low mid..	54/ ,, 68/	Columbian, ordinary ...	35/ ,, 43/
Salvador, good ord. foxy greenish...	40/ ,, 42/	Do. good ord. to low mid...	44/ ,, 64/
		Do. mid. to fine...	65/ ,, 93/

Receipts in Brazil to 27th April compare as follows with previous years:—

	1897-98. Bags.	1896-97. Bags.	1895-96. Bags.
RIO	3,841,000	3,127,000	2,044,000
SANTOS	5,738,000	4,728,000	2,795,000
	9,579,000	7,855,000	4,839,000

In Sale—

29 casks & tierces 12 barrels 1 bag Plantation Ceylon	...	56/ @ 115/6
7,917 bags East India. 4,895 bags Mysore chiefly sold	...	54/6 ,, 119/6
2,283 bags Coorg ...	...	55/ ,, 107/6
324 bags Naidoobatum	...	52/6 ,, 108/
404 bags Neilgherry ...	...	51/ ,, 97/6
11 bags Wynaad bought in		
10,090 bags Costa Rica part London cleaned, chiefly sold	...	28/ ,, 102/6
2,562 bags Guatemala ,, ,, ,,	...	41/ ,, 101/6
200 bags La Guayra bought in		
2,183 bags Columbian, part London cleaned, chiefly sold	...	51/ ,, 89/6
106 bags Mexican ,, ,,	...	63/ ,, 73
1,180 bags Salvador ,, ,, chiefly sold	...	38/ ,, 71/6
67 bags Coban	...	66/ ,, 86/6
50 bags Nicaragua	...	40/6 ,, —
25 bags Honduras	...	35/ ,, —
165 bags Liberian Selangor bought in.		
700 barrels 120 bags Jamaica, part London cleaned, good part sold	...	35/ ,, 100/6

Landed last week ...1,876 *tons. Deliveries* ...1,160 *tons. Stock*...14,189 *tons.*
Do. last year ...1,176 ,, ,, ..498 ,, ,, ...13,301 ,,

TEA.

Messrs. Gow, Wilson and Stanton's Indian, Ceylon, and Java Tea Report, dated April 29th, 1898, says:—

QUANTITY BROUGHT TO AUCTION IN LONDON
FROM 1ST JUNE TO DATE.

	Indian.	Ceylon.	Java.
1897-1898...	1,502,327 packages.	1,083,576 packages.	40,715 packages.
1896-1897...	1,478,453 ,,	1,007,271 ,,	41,232 ,,

31,568 *pkgs.* INDIAN
35,442 „ CEYLON
1,975 „ JAVA
} Total 68,985 packages were offered in public auction this week.

Duty payments during ten months of the season show only a moderate increase owing to the heavy falling off which took place a few months ago; this happily appears now to be giving place to better deliveries. There is now only very little China Tea left for displacement.

Quantity of tea (in lbs.) on which duty was paid at all Bonded Warehouses in the Kingdom from 1st June to 31st March.

	1897-8.	pctgs.	1896-7.	pctgs.	1895-6.	pctgs.	1894-5.	pctgs.
Indian	104,115,317	53	102,906,724	53	101,076,650	54	94,333,860	53
Ceylon	72,066,411	37	69,035,646	36	63,559,899	34	58,538,795	33
China	13,382,692	7	16,484,283	9	18,713,846	10	20,625,651	12
Other Countries	3,821,905	3	3,676,289	2	3,498,345	2	3,329,473	2
Total lbs.	193,386,325		192,102,942		186,848,740		176,827,779	

Quantity of tea (in lbs.) exported from Great Britain from 1st June to 31st March.

	1897-98.	1896-97.	1895-96.	1894-95.
Indian ...	4,895,725	4,661,801	3,270,163	3,048,689
Ceylon ...	8,857,916	7,633,132	6,204,442	4,562,977
China, etc. ...	16,219,672	16,908,982	15,636,355	17,362,829
Other Countries...	842,066	745,982	929,067	668,748

Indian. A continuance of the improved demand already noticed sufficed to maintain a very firm market with occasionally dearer prices, although the auction was comparatively heavy for the time of year. 230 "last of the season" invoices have been printed against 280 same period last year. 10,097,101 packages have been printed on garden account against 1,034,924 last season.

Week's av. of Tea sold on Garden Account, 1898, 19,944 pkgs., av. 7·91d. 1897, 8,802 pkgs., av. 7¼d.

	1898. Pkgs.	Price.	1897. Pkgs.	Price.	1st June to date 1897-8. Pkgs.	Price.	1st June to date 1896-7. Pkgs.	Price.
Assam ...	7,281	9·74	2,174	9	524,065	9·87	505,904	10·29
Cachar & Sylhet...	6,265	6·60	6,222	6¾	292,882	6·87	284,815	7·34
Chittagong ...	—	—	—	—	5,686	7·15	3,298	7·48
Chota Nagpore ...	160	5·25	—	—	1,826	5·00	1,944	5·12
Darjeeling ...	151	11·40	—	—	66,721	11·10	57,915	1/·46
Dooars ...	3,493	7·77	41	5	139,500	7·45	129,506	7·55
Kangra, &c. ...	73	6	76	7⅝	8,481	7·11	5,816	
Neilgherry ...	—	—	—	—	6,203	6·93	4,060	
Terai ...	—	—	—	—	20,016	7·19	13,488	
Travancore ...	2,521	6·21	289	6¼	32,193	6·36	28,185	

Total sold on Garden Account 1st June to date 1898, 1,097,101 p
av. 8·69d. 1897, 1,034,924 pkgs., av. 9·04d.

Comparative prices of Indian Tea in London:—

		1898.	1897.	1896.
DUST.	(Fair ordinary, dark liquor) ...	3½d	4d	4⅜d
FANNINGS.	(Red to brown, strong rough liquor) ...	3⅝d	4d	4⅛d
BROKEN TEA.	(Brownish to blackish, strong liquor) ...	6d	6⅝d	7d
PEK. SOUG.	(Blackish greyish, useful liquor).	6¼d	7d	7⅛d
PEKOE.	(Greyish to blackish, some tip, useful liquor) ...	7d	8½d	9d
PEK. SOUG.	(Blackish greyish, inferior liquor).	5d	5¼d	5⅝d
PEKOE.	(Blackish greyish, some tip, inferior liquor) ...	5¼d	6¼d	6½d

Ceylon. 35,442 packages following a week of 28,925 packages woul ordinary circumstances have further depressed the market, but such not been the case, the strong demand lately ruling fully sufficing to l prices steady at the advance established last week. The average p has advanced to 7·81d. against rather over 7½d. same week 1897.

Ceylon tea sold on Garden Account 1st January to date 1 372,059 pkgs., av. 7·63d. 1897, 329,649 pkgs., av. 8d.

Comparative prices of Ceylon Tea in London:—

		1898.	1897.	1896.
PEKOE SOUG.	(Ordinary leaf; fair liquor) ...	6d	6¼d	6⅝d
PEKOE	(Ordinary leaf, little twist; fair liquor) ...	7d	7d	8¼d
PEKOE SOUG.	(Rather bold leaf; indifferent liquor) ...	5d	5d	5¾d
PEKOE	(Somewhat bold leaf; indifferent liquor) ...	5½d	5¾d	6¼d

Java. A steady market resulted in ready sale at slightly impro rates. 105 packages from "Perbawattee" av. 10d. and 108 packages f "Goalpara" 8¾d. per lb. 9,387 packages were offered yesterday Amsterdam.

PUBLIC SALE OF SOUTH INDIAN TEA.

(AVERAGE FOR ALL INDIA 7·9*d.*) *April 29th.*

GARDEN.	Total.	Average.	Broken Org. Pek. or Flowery Pekoe.		Pekoe and Unassorted.		Broken Pekoe.		Pekoe Souchong.		Broken and Souchong.		Fannings, Du and Various	
	Quantity	Price.	Quantity	Price.	Quantity	Price.	Quantity	Price.	Quantity	Price.	Quantity	Price.	Quantity	Pri
Travancore ...	**2521 p**	**6·21**												
Amarath ...	53	5¾	...	...	32	5½	21	6¼	...	...	...	...	...	
Arnakal ...	110 p	6½	17	6½	36	6¼	35	7½	9	5½	1	5	12½c	
Arienkow ...	40	5½	...	...	25	6	...	...	10	5	3	4¾	2	
Atchencoil ...	77	6¼	...	...	25	5¾	24	7¾	28	5½	...	...	...	
Balamore ...	149½c	5½	...	...	109½c	5¼5½	35½c	6¼	...	...	4½c	4½	1½c	
„ ...	190½c	5½	...	...	118½c	5 5¼	64½c	6¼	...	...	7½c	4½	1½c	
Bison Valley ...	50	5¾	...	...	27	5½	23	6	...	...	...	...	...	
Carady Goody ...	108 p	6¼	29	6¼	11	5½	30	7¾	5	5¾	13	5	20½c	
Corrimony ...	150 p	5½	...	...	110½c	5¼	38½c	6¾	...	...	...	...	2½c	
„ ...	70½c	6¾	...	...	67½c	6½7¼	...	...	...	...	2½c	4½	1½c	
Elderslie ...	100	5½	...	...	46	5¼	31	6¼	20	4¾	...	...	3	
Fairfield ...	88	5¾	19½c	6¼	23	6¼	13	6½	20	5¾	9	5	4	
Glenmary ...	106 p	7¼	51	8¼	17	6¼	...	..	...	..	...	...	38 p	3½
Glenmore ...	140½c	5¼	...	...	86½c	4¾ 5	50½c	5¾	...	...	3½c	4½	1½c	
Mlapara ...	91	5¾	35	6¼	52	5½	...	...	...	...	...	...	4	
Penshurst ...	221 p	6½	98 p	6½9¼	49	6¼	40	6¾	24	5½	...	...	10	
Seafield ...	114½c	6	...	...	75⅓c	5¾	36½c	7	...	...	2½c	4½	1½c	
„ ...	100½c	6¾	...	...	66½c	6¼	32½c	8¼	...	...	1½c	4½	1½c	
Travancr Est B.A...	328	6¾	...	...	92	6¼6½	97	†8 †8¼	23	5½	12	5 5¼	104	†
„ P...	116	6¾	...	...	25	6	91	6½7¼	...	...	...	...	...	...
Vembenard ...	113	6½	35	6½	21	6¼	42	7	9	5⅓	...	...	6	
W ...	7½c	7	...	...	7½c	†7	...	...	...	...	...	...	...	...

Teas marked thus † are last of the Seasons.

PLANTING OPINION.

A WEEKLY JOURNAL

WRITTEN BY PLANTERS FOR PLANTERS.

VOL. III.] COONOOR, SATURDAY, MAY 28, 1898. [No. 21.

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SUBSCRIPTION.—Advance Rates: Yearly, Fifteen Rupees; Half-yearly, Eight Rupees; Quarterly, Five Rupees, and Monthly, Two Rupees, including postage. Single Copies, Eight Annas.

ADVERTISEMENTS.—From the 1st October, 1897, the charge for line advertisements will be: 4 as. per line for the first, 3 as. for the second, and 2 as. for the third and succeeding insertions. Five-line advertisements from Subscribers will be inserted for three issues for one rupee; non-Subscribers will be charged two rupees.

DOMESTIC OCCURRENCE.—The fee for inserting a domestic occurrence will be *One Rupee* for each insertion, payable in advance.

N.B.—Remittances should be sent to the Manager, "Planting Opinion," 11/12, Second Line Beach, Madras.

IMPORTANT NOTICE.

The Business Offices of this paper having now been removed to Madras, all remittances should be made payable to the Manager of *Planting Opinion*, 11 and 12, Second Line Beach, Madras, who will also attend to all advertisements, &c.

Letters to the Editor should be addressed to Coonoor, as usual.

SEASON REPORTS.

TO OUR SEASON REPORTERS.

Please post your next reports to reach Madras on Friday, the 3rd June, 1898.

Season Reports should be sent to the Printers, Messrs. ADDISON & Co., direct, and not to *Planting Opinion* Office.

Nilgiris.

COONOOR, 26*th May*.—*Weather.*—Still very showery weather with occasional thunder-storm 2·20 inches this week. *Crops.*—Coffee in excellent heart, tea also flushing very well again at last. *Health.*—Health very indifferent. *Labour.*—Labour ample, though coffee coolies have mostly been paid off and have returned to their villages.

KULLAKAMBY, 25*th May*.—*Weather.*—Heavy rain and some hail has fallen during the week, and the weather continues cloudy. Work nearly over in most estates. *General Health.*—Fever still very common, and some estates have nearly half the labourers laid up.

S.-E. Wynaad.

DEVALA, 25*th May*.—*Weather.*—Since my last report the weather was very trying, and from the 18th instant every evening we are having good showers of rain followed by thunder and lightning.—*Crop.*—The spikes have set, and the crop seems everywhere a bumper; tea flushing well. *Grain.*—Rice 8 and 9, salt 8, ragi 16, cholum 16 measures per rupee. *Health.*—Fever, diarrhœa and dysentery are still prevalent.

IMPORTANT INSECTICIDES.
II.

The following are further extracts from the publication referred to in our last issue :—

PURE KEROSENE.

Kerosene, or coal oil, is occasionally used directly against insects, although its importance as an insecticide is in the combinations with soap and milk described below. Under exceptional conditions it may be sprayed directly on living plants, and it has been so used, even in the growing season, without injury. It is apt, however, even in the dormant season, on leafless plants, to do serious injury or to kill the plant outright. The pure oil should only be applied as a winter wash to the older parts of plants, either in a spray or with a sponge, using the least possible quantity. Its use is not advised, save in exceptionally bad cases of infestation, and during the dormant period, and should never be attempted after the first sign of spring growth appears. Kerosene is now being used to a certain extent, also, mechanically combined with water in the act of spraying, and is less harmful in this way than when used pure, as it is broken up more finely and is better distributed; but the danger to tender plants is not altogether avoided by this means. Many insects which cannot be destroyed by ordinary insecticides, or where it is unsafe to spray the plants themselves, may be killed by jarring them from the plants into pans of water on which a little kerosene is floating, or they may be shaken from the plants on to cloth-screens saturated with kerosene, the crude product being preferable for the latter purpose. As a remedy for the mosquito, kerosene has proved very effective. It is employed to destroy the larvæ of the mosquitoes in their favourite breeding-places in small pools, still ponds, or stagnant water; and where such bodies of water are not sources of drinking-supply or of value for their fish, especially in the case of temporary pools from rains, which frequently breed very disagreeable local swarms, the use of oil is strongly recommended. The kerosene is applied at the rate of 1 ounce to 15 square feet of water surface. It forms a uniform film over the surface, and destroys all forms of aquatic insect life, including the larvæ of the mosquito, and also the adult females coming to the water to deposit their eggs. The application retains its efficiency for several weeks, even with the occurrence of heavy rains.

THE KEROSENE WASHES.

The Kerosene and Soap Emulsion Formula.

Kerosene	gallons 2
Whale soap (or 1 quart soft soap)	pound ½
Water	gallon 1

The soap, first finely divided, is dissolved in the water by boiling and immediately added boiling hot, away from the fire, to the kerosene. The whole mixture is then agitated violently while hot by being pumped back upon itself with a force pump and direct discharge nozzle throwing a strong stream, preferably one-eighth inch in diameter. After from three to five minutes' pumping the emulsion should be perfect, and the mixture will have increased from one-third to one-half in bulk and assumed the consistency of cream. Well made, the emulsion will keep indefinitely, and should be diluted only as wanted. For use for the treatment of large orchards, or in municipal work requiring larger quantities of the emulsion, it will be advisable to manufacture it with the aid of a steam or gasaline engine, as has been very successfully and economically done in several instances, all the work of heating, churning, etc., being accomplished by this means. The use of whale oil soap, especially if the emulsion is to be kept for any length of time, is strongly recommended, not only because the soap possesses considerable insecticide value itself, but because the emulsion ma with it is more permanent, and does not lose its creamy consisten and is always easily diluted, whereas with most of the otl common soaps the mixture becomes cheesy after a few days a needs reheating to mix with water. Soft soap answers very w and one quart of it may be taken in lieu of the hard soaps.

In limestone regions, or where the water is very hard, some of t soap will combine with the lime or magnesia in the water, and m or less of the oil will be freed, especially when the emulsion diluted. Before use, such water should be broken with lye, or ra water employed; but better than either, follow the milk emuls formula, with which the character of the water, whether hard soft, does not affect the result.

The Kerosene and Milk Emulsion Formula.

Kerosene	gallons 2
Milk (sour)	gallon 1

Heating is unnecessary in making the milk emulsion, wh otherwise is churned as in the former case. The change fron watery liquid to a thick buttery consistency, much thicker th with the soap, takes place very suddenly after three to five minut agitation. With sweet milk difficulty will frequently be experienc and if the emulsion does not result in five minutes, the addition o little vinegar will induce prompt action. It is better to prepare t milk emulsion from time to time for immediate use, unless it can stored in quantity in air-tight jars, otherwise it will ferment a spoil after a week or two.

How to use the emulsions.—During the growing period of summ for most plant-lice and other soft-bodied insects, dilute the emuls with from 15 to 20 parts of water; for the red spider and otl plant mites the same, with the addition of one ounce of flowers sulphur to the gallon, for scale insects; the larger plant bu larvæ, and beetles, dilute with from 7 to 9 parts water, apply w spray pump.

For winter applications to the trunks and larger limbs of trees the dormant and leafless condition, to destroy scale insects strong mixtures may be used even to the pure emulsion, which latter ca not be sprayed successfully, but may be applied with brush sponge. Diluted with one or more parts of water it may be appl in spray without difficulty. The use of the pure emulsion is her treatment, and only advisable in cases of excessive infestation, and general it is much better and safer to defer the treatment until t young scales hatch in the spring, when the nine times diluted wa may be used with more certain results and without danger to plan The winter treatment should be followed by a use of the spri wash to destroy any young which may come from female sca escaping the stronger mixture.

Caution.—In the use of kerosene washes, and, in fact, of all c washes on plants, the application should be just sufficient to w the plant, without allowing the liquid to run down the trunk a collect about the corum. Usually at this situation there is a cav formed by the swaying of the plants in the wind, and accumulati of the insecticide at this point, unless precautions be taken, m result in the death or injury of the plant. It is advisable to mou up the trees before spraying and firmly pack the earth about t bases whenever it is necessary to drench them thoroughly, a care should be taken in refilling the tank that no free oil is allow to accumulate gradually in the residue left at the bottom.

TIME TO SPRAY FOR SUCKING INSECTS.

For the larger plant-bugs and theophides, or active plant-l and all other sucking insects which are present on the plants inju ously for comparatively brief periods, or at most during summer or

treatment should be immediate, and if in the form of spray on plants, at a strength which will not injure growing vegetation. scale insects and some others, as the pear psylla, which hiber- e on the plants, two or more strengths are advised with most of liquid insecticides recommended, the weaker for summer appli- ions and the more concentrated as winter washes. The summer shes for scale insects are most effective against the young, and atment should begin with the first appearance of the larvæ of the ing, or any of the later broods, and should be followed at intervals even days with two or three additional applications. The first od, for the majority of species in temperate regions, will appear ing the first three weeks in May. Examination from time to e with a hand lens will enable one to determine when the young ny brood appear; the winter washes may be used whenever sum- r treatment cannot be successfully carried out, and are particularly antageous in the case of deciduous plants with dense foliage ch renders a thorough wetting difficult in summer, or with scale ects which are so irregular in the time of disclosing their young t many summer treatments would be necessary to secure any- ere near complete extermination. In the winter also, with de- uous trees, very much less liquid is required, and the spraying y be much more expeditiously and thoroughly done. In the case badly-infested trees, a vigoeous pruning is advisable as a pre- inary to treatment. As winter washes for temperate regions, the osene mixtures and whale oil soap solutions, particularly the er, have so far given the best results. These stronger mixtures y be applied at any time during the dormant period of vegetation, d, with deciduous trees, preferably immediately after the falling of foliage in the growing season, any of these stronger washes would se the loss of foliage and fruit, and the more concentrated proba- the death of the plant.

NOTES.

e transport of fruit. In another column we print an interesting article on a new method packing fruit for export. In connection with the length time that fruit will bear transportation, it is worthy of te that the Jamaican Agricultural Society lately received ox of Californian oranges which were in excellent condi- n thirty days after being packed.

other coffee district? There is not much more to fear from the Transvaal than from eensland for the next many years, in the way of affecting e coffee market, though our friend the *Produce World* inks otherwise. It says:—

"Transvaal coffee will probably shortly become a competitor in the rkets. According to the report of the Pretoria Agricultural ciety and Transvaal Agricultural Union, all the eastern Transvaal m Spelonken in the north to Vryhead in the south contains cts of land suitable to coffee, and some farmers, besides growing their own consumption, find the berry pays better than sheep- ming."

planting con- cession. We understand that a valuable concession of about ten thousand acres of forest land has been definitely obtained m a petty Rajah by Mr. E. C. Vernède, a well-known Nilgiri nter, now resident at Coimbatore. The land is suitable for ffee, both Arabica and Liberian, tea, cardamoms, pepper and on. It is easily get-at-able from both Coimbatore and Palghat. The labour supply is ample, both Coimbatore Tamils and Malayalees, villages of the latter being only some 15 miles off the concession. For the first six years the land is free of assessment, and from the seventh a rupee an acre will be charged all round. We believe Mr. Vernède is entertaining applications for the disposal of a portion of his valuable concession.

The cocoanut market. The market for the products of this valuable tree has begun to improve again, mainly from the greatly increased demand for copra (the dried kernel) from Russia. The London price is usually dependent on the price of cocoanut oil, but the Russian demand has resulted in a very marked divorce between the relative value of the oil and its raw material. Direct shipments from Ceylon are said to account a good deal for the increased Russian demand. It is a fact not generally known in India that many of the most prosperous Tea Companies of Ceylon have invested a large proportion of their reserve capital in cocoanut plantations, which have for many years been regarded as the Consols of tropical agriculture.

To mend China. To planters, above all mofussil residents, well-tried recipes for mending articles of household use and furniture, should be of great interest. The following one is taken from the pages of the *Indian Cabinet Maker*, a Calcutta Trade journal:—

"One of the least known, though also one of the simplest and most effective of cements for this purpose, is white oil-colour such as is usually sold in tubes, from which it is squeezed out in the desired quantity. Broken things should always be mended as soon as possible after the accident, but, of course, there are occasions when this is not feasible. In such a case, without any previous preparations of any kind, merely paint the broken parts with oil, press them into position, tie them in position, or otherwise secure them, if possible, and the operation is complete. The only precaution to observe to ensure perfect success is to put the mended article away to dry thoroughly for six weeks; after that period, however, neither heat, nor cold, nor moisture should affect the cement. If, after complete drying, any colour remains, having possibly oozed out, it must be carefully scraped off with a knife before the article is taken into use again, and after it has dried. (2) If any kind of earthenware vessel is cracked and leaks, it can be so treated as to be quite of use again. Put the cracked jug, or whatever it may be, into a fish kettle, or other suitable vessel that will hold it conveniently, covering it completely with cold milk. Set it over a moderate fire, let the milk boil up gradually, and as gradually nearly boil itself away. When the liquor has been absorbed by one-half, stand the vessel aside, and when the contents are quite cold, the jug or dish will hold water again."

America's drink bill. The following is a comparative statement of the cost to the consumer of stimulating drinks, bringing together into one group alcoholic and non-alcoholic stimulants, which, at retail cost, were consumed to the value of 1,055,418,137 dollars:—

	Dollars.
Alcoholic drinks	901,218,011
Non-alcoholic stimulants—	
Coffee	121,726,002
Tea	29,474,124
Cocoa	3,000,000
Total...	1,055,418,137
Total, 1896...	1,016,126,400

The above represents a yearly *per capita* expenditure for beverages of 14,50 dollars for the 72,807,000 inhabitants of the United States, or about 4 cents per day. The above figures seem to show that the cheaper and the milder stimulants are growing in favour, and are steadily reducing the use of fiery liquors.

The quantities of the four leading beverages consumed for the year ending June 30th, 1897, are estimated as follows :—

	GALLONS.
Coffee	... 1,217,260,020
Beer	... 1,069,310,262
Tea	... 564,537,740
Spirits and wines	... 111,755,140

The green bug on the Pulneys.

I hear, says a Lower Pulneys correspondent, from the Nilgiris that Mr. Nicholson has no bug to feed his lady-birds on when he gets them! I wish I could say the same of the Pulneys! At this time of the year in 1897 the bug had obtained a firm hold of the coffee in very large colonies, and though we are anything but free in this year of grace 1898, this does not bear comparison with last year. On the two largest estates on these hills *liming* has been and is being resorted to. In one case the lime is being applied to the roots of the trees, ½ lb. to a tree; in the other the lime, 1 to 2 lbs. to a tree, was sprinkled over the trees and on the intervening spaces, and the bug wherever visible carefully rubbed off by hand and killed. This no one expects to be anything but a severe check to the bug as soon as it appears; it would be quite a hopeless method when the bug has multiplied to any extent. In spite of this, then, on all estates on the south side of the hills there is bug, and I see that here and there it is getting in its deadly work, and branches are dying back from the tips, and the young unformed berry is dropping off, and where the bug is thickest this is only on the native coffee as yet; the whole tree is showing up decidedly black already. I am glad to say this is distinctly rare this year. On the Northern Estates there is so little bug that nothing is being done to check it in any way. I think this is a mistake, for bug increases wonderfully quickly under favourable conditions, as these estates may find to their cost! Perhaps, however, having spent money on lady-bird importation, the proprietors mean to rely on the lady-bird and nothing else. For all our sakes let us hope that the lady-birds, or other causes, will effectually choke off this awful pest.

Irrigation of tea.

Much has been advanced in favour of the irrigation of coffee to make a certainty of the dreadfully anxious blossom time. Little, however, has been advanced with regard to the use of water on tea gardens in times of drought, which occur regularly over more or less extended periods in every tea district in India at least. Except in exceptional seasons, artificial irrigation would never be able to "save the crops," but it could at least be depended on to add a very considerable percentage to the yield in most years.

It is interesting to see that the *Indian Planters' Gazette* has lately taken up the subject in reference to Assam. Failure of rain there at the critical *post* pruning period retards the flush for a month or more, or else produces a tough leathery leaf that turns out very badly-coloured and cup-weak tea. Early and copious rains, moreover, contro a great extent the ravages of red spider and other pe This is in Assam. On the Nilgiris we have always noti that while the intensity of red spider seems to dep wholly on the length and completeness of the drought, i just the other way about with our principal pest, *i.e.*, fl worm. This pest, which is a particular form of bud-ro we have not noticed described in Dr. Watt's Tea Pests quiescent in the dry season, but showery weather im diately hatches out the young broods. Whether soaking the ground alone would have the same effect we can say, as the life history of the insect is unknown. Be as it may, as yield depends on moisture, it is better to h large flushes with the risk of flush-worm than to h practically no flush at all.

Where hill streams are unavailable, our contempor advocates well-sinking, which on most South Indian gard would scarcely be needed. Irrigation on flat land prese no difficulty except that of efficient subsoil drainage draw off the superfluous water. On hill gardens a syst of waterholes, especially if dug so as to form part o permanent drainage system, would perhaps be necessa On the objections to irrigation we hope to touch in a fut issue.

The London Market.

Coffee.—Arivals continue to pressed forward in very large qu tities, so much so, indeed, that it is impossible to dispose all during the time allowed each day for the auctions. I about 26,000 bags have actually passed the hammer, a as the demand has continued very good, practically whole were sold, and only a very few parcels of undesira sorts were bought in. The bulk have consisted of home trade descriptions, such as Mysore and Costa R and with keen competition the whole have been disposed at prices which mostly show an advance of from 1*s.* to while the small sizes of Mysore have sold at a lar advance than this. Medium Costa Rica between 65*s.* a 85*s.* has also sold very fairly at dearer prices, but the lo qualities, suitable only for export, at first declined from to 3*s.*, but since then there has been some improvement rates are about unchanged. In the terminal market, altho only a small business has been done, prices have harde about 1*s.* to 1*s.* 6*d.* per cwt.

COFFEE SHADE TREE.

Sun-dried Erythrina Lithosperma loppings, &c., contain ton :—

61·50	lbs. Nitrogen.
57·38	„ Potash.
14·92	„ Lime.
13·68	„ Phosphoric Acid.

Seed cured under Messrs. Sutton and Sons' advice.

Orders should be booked early for the 1898-1899 crop of seed f the parent trees of above analysis at Rs.6 per pound contai about 2,000 seeds. *Germination guaranteed.*

Only thornless variety extant, and is not procurable anywhere from the

MANAGER, ARIENKOW ESTATE,

Shencotta

LONDON COFFEE RETURNS.

—	HOME CONSUMPTION.		EXPORT.		STOCK.	
	1898	1897	1898	1897	1898	1897
For the week ended April 23, 1898.	Tons. 407	Tons. 194	Tons. 753	Tons. 304	Tons. 14,189	Tons. 13,301
For the 16 weeks ended April 23, 1898.	4,775	4,434	7,240	4,899	—	—

Indian Teas.—The market opened with an active feeling, d for the larger quantity brought forward on Monday ces showed a general advance. Common qualities, which med a considerable proportion of the supply, rose ½*d.* th brisk bidding at the improvement. The upward move- ent in prices for these kinds is no doubt due, in a great easure, to speculative buying, as there certainly does not pear to be any justification for so sudden an advance, nsidering the large proportion of these grades to the total ock and the considerable shipments of similar tea from lombo. For the next higher descriptions the rise is even ore pronounced, and may only prove temporary; at the me time, there are stronger reasons for the advance in ese sorts than in the common kinds. It is, therefore, obable that prices for these may not fall to the level previ- sly ruling, as the supply for some time to come is not kely to be more than the trade can conveniently absorb. he finer kinds have sold readily at firm to advanced rates, d the market will in all probability continue very strong ing to the gradually declining quantity available, which nnot be augmented until the arrival of the new crop some onths later on. At the public sales 31,568 packages were ought forward and only about 1,700 withdrawn, and for xt week a fairly liberal supply is catalogued.

LETTERS TO THE EDITOR.

IRON FACTORY ROOFS.

SIR,—Can you, or any of your readers, kindly answer the llowing queries:—

(1) A cheap and efficient method of covering a corrugated on roof, so as to prevent extremes of temperature? The vering must be light enough to use the roof without additional ams or rafters.

(2) The best method to secure an iron roof, so as to obviate l risks of its being carried away by wind? Would stout wire enough, running transversely from eave to eave over ridge, ssing through wall a foot or two below eave and then attached rafter? I have already wall-plate bolts built in the walls. The ires would hold the iron sheets on to the rafters. To hold e rafters and wall-plate bolts, I could attach stout wire ropes om the "couplers" to inside flooring beams, if required.

I wish, Mr. Editor, you could arrange for a special staff of rrespondents to answer these sort of queries.

Yours in doubt,

A SUBSCRIBER.

PLANTAINS FOR EXPORT.

SIR,—I see the question of the cultivation of plantains for export discussed in your paper. It would be interesting to myself and, no doubt, many other brother planters to get some useful hints and information on the subject, through the medium of your valuable paper, from some one who can speak from experience. Provided the fruit could be conveyed quickly enough to the nearest port, there seems no reason why we should not be able to export it profitably, as it grows freely and almost anywhere. Answers to the following questions would be interesting:—

(1) The best variety or varieties for exporting.
(2) Where such can be obtained?
(3) How to pack for export? Should the bunches be sent whole or sub-divided?
(4) How to judge when to cut the fruit so as to arrive at destination in good condition?
(5) Which is the best market for them?
(6) How long will the fruit keep after cutting?
(7) How to cultivate the trees to best advantage?
(8) Any other points of interest not covered by foregoing questions.

MERCARA, COORG, 13*th May*, 1898. } ED. FENNELL.

A CHEAP AND GOOD BUNGALOW ROOF.

SIR,—These are the *four requirements for a good roof:* 1st, to be watertight; 2nd, fireproof; 3rd, sound proof; and the 4th follows, thick enough to keep out heat or cold. Besides which, a roof ought to look pretty. I made an open roof with a good pitch to it, which always gave a pretty exterior and interior appearance to "cottage-building." The "couples" had their corners bevelled, and were wood-oiled, set two feet apart; on these were nailed strong reepers set across 21 inches apart, pretty strong, $3'' \times 1\frac{1}{2}''$. On ridge were placed *rider couples* carrying ridging giving a 3″ bottom ventilation when covered with continuous roofing. At end of reeper at "eaves" was nailed a strong oiled batten $3'' \times 3''$, after which continuous roofing was placed across, nailed only at top end, to reeper, the upper iron roofing overlapped it $2\frac{1}{2}$ inches, till it was covered 9 inches under "rider" couples on ridge; then rider couples were covered with iron with a $2'' \times 2''$ batten to prevent tiles or bricks from slipping. On the iron was placed a double layer of matting, over which tiles $10'' \times 8''$ and 2″ thick, or failing these, brick, all placed horizontally and "bonded." Finally, a pretty board ridging finished the roof; also side and bottom had boarding ornamented. About chimneys, an iron lap of lead sheeting protected part from rain when chimney penetrated roof, so the lead lapped over the continuous roofing. A prettier, cheaper, and more effective roof I ask the next man to suggest. All was made on the estate.

CALCUTTA, 13*th May*, 1898. } VALE.

TEA ON THE NILGIRIS.

SIR,—In the last number of your papers there is a report of the Annual General Meeting of the Nilgiri Planters' Association. Among them I notice some interesting remarks by Mr. Windle, the Honorary Secretary, on the subject of improving the quality of our teas. He attributes, among other causes, the poor figure too often cut by Nilgiri teas in the London market to deficiency in withering accommodation. In this he is undoubtedly right. But he does not go far enough. The haziest

notions are often held as to what "withering" means. Until such ignorance is cured, the best-equipped of factories will not improve matters. There are, perhaps, three tea gardens on the hills which are well up-to-date in the modern methods of tea-manufacture. These command good competition in the Lane, and their prices are usually good; sometimes very good, indeed. The moral is obvious.

The question of making good tea is a problem that cannot be solved in the tea-house alone, however excellent the factory or the tea-maker. The Nilgiris, as a district, are as backward in their system of pruning, picking and cultivation, generally, as they are antiquated in their factory appliances. That is to say, they are about a quarter of a century behind the times.

The climate is fair enough, the soil fair to indifferent, the jât very bad (50°/₀) to very good (3°/₀), while, though it may sound offensive, the men (as tea planters) about on a par with their factories.

More power to Mr. Windle, says

A Nilgiri Tea Planter.

GENERAL ARTICLES.

TEA PESTS AND BLIGHTS.

(*Continued from page* 236.)

Plucking. On the character of the pruning given to the bush, discussed in our previous issue, depends almost altogether the flushing powers of the bush. We might also add the style of plucking. The principles of vegetable physiology involved in the action of flushing is little noted by the ordinary planter. The aim of every plant being to reproduce its kind, *i.e.*, to seed, the act of flushing is simply an endeavour or, rather, repeated endeavours to form wood that will ripen sufficiently to bear seed. This tendency to ripe wood the planter does his utmost to check by continual plucking, which must inevitably result in a great strain on the tree.

Leaving Dr. Watt for a moment, it is obvious that the course of the planter must be a happy choice between the two extremes of too light and too severe plucking. The former, by allowing the wood to ripen, will stop flush and allow a profuse blossoming to take place. The latter, by too great a check to the plant, will likewise stop flushing (turning *banjhi*) and moreover seriously injure the bush.

Dr. Watt has interesting views on the *banjhi* question. He looks upon it, not, as do so many, as a cause, but as a result. Ill-health from various reasons is the inevitable cause of barren or *banjhi* buds. The usual idea is that a *banjhi* bud acts as a sort of dam to the free flow of sap, and that plucking the banjhi leaves will cause the sap to burst out elsewhere in healthy flush. To a limited extent the practice is good, as it follows of course the general principles of plucking in general. But as the formation of *banjhi* buds is the last effort of the plant to regain some of the strength lost in giving continual crops, the plucking of these buds can only act as a very alleviative, and must gravely accentuate the ill-condition of the tree. The cure of *banjhi* buds does not lie in plucking them; better cultivation, more efficient drainage, manure, all these will do a great deal to restoring the normal health of the bush.

Different styles of plucking vary greatly in their effe on the bush. It may seem strange, but it is an undoubt fact that fine plucking, *i.e.*, picking for quality, is a greater strain on the bush than plucking coarsely or quantity. The scientific explanation is simple enough. the latter style, it is usual to allow a good growth bef plucking the three leaves and bud. In quality pluckin the leaf (two leaves and a bud) is picked at a young stage, and consequently both the remainder of the shoot a the remaining leaves are far less mature than in the form case. The interval between the two styles also diff naturally, quality plucking being "little and often" agai the "much but seldom" of quantity picking.

A combination between these two styles is the int mediate one of two leaves and-a-half and the bud. T practice has, however, almost nothing to recommend it, a in effect combines the vices of both, with the exception avoiding the extra length of stalk. The great fault this method is that, while the growth of the flush bef plucking is the same as in quality plucking, *i.e.*, three lea (excluding the *jarium*) and a bud, only half, or oftene quarter of a leaf, is left to sustain the vital processes of plant. It were far more rational to allow a growth of extra leaf, *i.e.*, four and a bud, and to boldly pluck th leaves and a bud at once.

We have perhaps outrun the order of our subject rushing at once from pruning to what we may call "curr plucking." On the initial plucking or tipping after prun is of course the most important of all, and differs accord to the style of plucking intended. For quantity plucki seven leaves and a bud are allowed to grow, while quality, only five and a bud are allowed to grow, three an bud and two and a bud being the respective pluckings. severer the prune, of course, the greater length of shoot be left before plucking.

THE WAR AGAINST BLIGHTS.

Take any blight you like to mention, let it be disease, red spider, brown-rust, flush-worm, or black b Each must have a life history of its own, and just w that history is, is the most important thing you can possi find out. It isn't easy, granted. If you can't trace e link, you can at least direct your efforts at certain sta of its existence. You have a certain pest on your tr suppose it is bug and that it is in full vigour. It i sucking not a biting insect. Well, as you can't poison food very well, you can try to choke it by spraying a vis wash—kerosine emulsion—over it, or else you can us caustic-like lime to burn them out, or choke them poisoning the air with noxious gases. Well, we'll supp you've done your best, spent a good deal of money partially got rid of the pest. In a short time you will that the pest on neighbouring untreated parts has likew disappeared, or partially so. Its eggs, or its pupæ, o few old comatose insects, must be in existence somewh to carry on the breed next season. Now where are th eggs or pupæ? There aren't many alternatives op Either they are resting in neighbouring jungle, or, whic far more likely, concealed either on the leaves or branch or in the soil itself. A few trees should be selected

ervation, and isolated by means of fine gauze wire if sible. To test the leaf theory, wash every leaf and ng shoot of the tree in kerosine emulsion. In another wash the stem and old branches only. In a third, t the collar and the roots as far as possible in a similar nner. With a fourth tree, pick up all dead leaves twigs only, and burn them. While the fifth and last— soil test—would be best carried out by removing all the face soil to a depth of, say, a foot, replacing it by burnt thoroughly mixed with a small quantity of artificial nures. Such experiments should, if possible, be dupli- ed. The cost of the gauze wire will not be slight, it is e, but should not be exactly ruinous. If, however, the ze wire is not obtainable, somewhat more extensive eriments must be carried out in the field. Whole rows trees, instead of individual specimens only, should be ated. If all these methods prove inconclusive the first r, try again and again.

The great thing is to spend all the money allowed to bat the pest *before* it makes its appearance in its full nbers. If you can once stop the first broods, success is rs.

Almost every pest or blight can be attacked in the same y, and with undoubted success if perseverance and care freely given to the object.

But it must be remembered that our most dangerous ghts can only exist on sufferance, as it were. The trees st be unhealthy from other causes, such as injudicious ning, cultivation, or manuring before a pest can effect ure lodgment. The presence, therefore, of a pest is a n patent that all is not well with the tree. The true ses must be searched for and found. At first sight it l prove a most puzzling tangle to unravel. But a little e and accurate observation will soon lead one on the ht track. We will take for example any pest which ms prevalent all through the district. As it seems thrive in all sorts of places and under all sorts of con- ions, the task is no easy one to find out which conditions y be called causes, which can be termed effects, and se which are only accidental. Let the observer begin his own estate. The pest can be found all over the ate. Some of the worst patches are, however, on fields of parently distinctly different soil and aspect. He must down all the points he can of *resemblance*, such as shade, nner of soil working, drainage, manuring and so on. ints of difference need not be noted at all. The fewer points of resemblance the easier will be his subsequent rk. For he can with justice take for granted that some least of those conditions identical in both cases—if his list correct—tend to encourage the pest. The next thing to is to turn his attention to the fields which are most free m the pest. If he can trace all the points of resemblance being present in the unaffected field, he had better race his steps and do the work again. We will suppose t at last two or three of the supposed disease-inducing ditions are absent in the healthy field. He cannot go ch further in the work on his own estate. He must now it neighbouring gardens and test his theory. By degrees d by frequently retracing his steps, he will have at last nd out a group or combination of causes almost invari- ly present in the most diseased fields and present in only slight degree in healthy plots. These causes may not have any surface connection with each other, and it may be that singly they are not of the slightest effect on the disease, but that if found in a particular combination, disease is almost always present. He must now trace the points of resemblance in the exceptions to his rule. From here the way is easy, and all he has to do now is first perhaps to correct his theory by a similar investigation into the causes that make for health, and to finally test his conclusions by removing the conditions that seem to so strongly favour disease.

PRESERVING FRUIT FOR EXPORT.

A New Process.

The following from the *Australasian* will be read with interest by all interested in the possibilities of the cultivation of fruit for the English market :—

"At a recent meeting of the Fruit Growers' Association, Mr. W Sutherland exhibited samples of the following fruit by his process. —Peaches: Hale's Early for 10 weeks; Early Crawford, 9 weeks; Royal George and another variety, 6 weeks. Pears: William Bon Chretien, 9 weeks; Doyenne Boussoch, 6 weeks. Plums: Early Green Gage, 10 weeks; Washington (soft and discoloured), 10 weeks; Orleans, 8 weeks; Blue Belgian, 8 weeks; Japanese and yellow plum, 8 weeks; Nectarines, 10 weeks; Tomatoes, 5½ weeks. Grapes: Black Prince, Muscat, Gordo Blanco and Lisbon, all for 6 weeks. Apples (early): Duchess of Oldenburg, 10 weeks; William's favourite, 10 weeks, and Emperor Alexandra, 9 weeks. All these samples were kept at the cold store of Mr. Ridge, in Fitzroy.

"This process is founded on two principles: first, that all fruits last in better condition for a longer time the cooler they are kept, provided that the temperature is not taken below the freezing point of water; and second, that the surface of the fruit must be kept dry. The necessity of keeping the skin of fruit dry arises from the fact that the spores of yeasts, moulds and fungi generally, which lie by the thousand on the skin of fruit, are unable to germinate successfully without a supply of water, although a film of water quite invisible to the eye, or imperceptible to the touch, amply suffices for their modest requirements. Some fruits are so strong in the skin that even if their surface is moist enough to allow the spores to germinate, the young fungi are unable to break through the skin to get nourishment for further growth, and so their inroad is arrested. But in the long run moisture is bad for even the hardiest of fruits. Thus fruit must be kept dry to avoid the attack of fungoid diseases. But in addition to this danger from without, fruit is exposed to danger from within, because chemical changes are going on within its substance, producing all the remarkable effects of ripening, but not stopping there, for ripeness passes rapidly into over-ripeness. The higher the temperature the more rapid the chemical changes, and this is the reason given why fruit must be cooled if it is to be kept for a long time at its best. But the use of cold is claimed by Mr. Sutherland to confer another great advantage, inasmuch as growth of yeasts, moulds and fungi generally is greatly slowed down at low temperatures, and hence on the surface of cold fruit any spores that do germinate in favoured positions for working mischief grow so very slowly that after weeks they are still too small to be visible to the naked eye; whereas during the same time on warm fruit they would have converted it to a mass of corruption. The author of this process, therefore, regards dryness and coolness as the two main points in the keeping of fresh fruit. There is some difficulty found in providing the two necessary conditions at the same time, for everyone is familiar with the tendency of a cold surface to precipitate moisture from the atmosphere in the form of water, as, for instance, in the deposition of dew. On this account cold fruit is especially troublesome to keep dry. In the Perkins' process the difficulty was overcome by circulating amongst the fruit cold air, so dry that the fruit could not deposit any moisture out of it. But this necessitated a special sort of refrigerating machine for fruit, as it is rather hard to make cold air dry enough for the purpose. Moreover, another difficulty is that the driving of air for weeks over fruit must rob it of perfume and tend to shrivel it a little by carrying off moisture.

"In the Sutherland process the fruit is kept dry by wrapping it in the usual way in dry paper, which is kept from being spoiled by the moisture in the atmosphere by enclosing the fruit (so wrapped) in wax-paper bags, which are sealed up hermetically or nearly hermetically. These bags may be of any size, from that large enough to line a whole case down to that so small as to contain only a single fruit. When the bag or bags are sealed up, and the lid of the case nailed down, you have the fruit insulated from external action in lots varying with the size of the bag used. The case can then be refrigerated by any appliance in use for the purpose; there is no necessity to employ only refrigerating machines of special construction for supplying dry air. The refrigerating chamber may be dripping with water without harming the insulated fruit, although, of course, it is not advisable to let the case get wet unnecessarily. The whole case is cooled as quickly as possible nearly to 32 degrees Fahr., and is to be kept at about that temperature. Any moisture that the fruit gives off is absorbed by the paper, and in this way the fruit is kept both dry and cold with ordinary appliances.

"In addition to complying with the two essential conditions for keeping fruit sound for a long time, the following subsidiary advantages are claimed for the process: First, if a bad fruit is by accident packed in a case, the insulation confines its evil effects to the bag in which it is enclosed; second, the insulation prevents the loss of perfume and moisture, so that the fruit has the best chance of maintaining its fresh appearance, flavour and perfume; third, the insulation still protects the fruit from moisture when for distribution it is taken from the cold store and exposed to the comparatively warm and moist ordinary atmosphere, the retailer keeping the fruit for a day or two till it ceases to be cold, when it can be safely exposed to the air. Its cheapness and simplicity are obvious, the process having been specially simplified down to make it applicable on the smallest orchard. It saves its own cost by reducing freight, because it enables the cases to be packed solid in the ship, thus saving the space at present wasted in ventilation. All that the orchardist has to do is to place the fruit in bags, or in the case lined with a single large bag, and to seal up the mouth of each bag by running a warm iron along it. He is, of course, expected to excercise his experience and judgment in determining the stage at which each fruit will be packed. For example, apricots and peaches must be full grown, but without soft spots; grapes ripe but free from over-ripe berries; pears full grown, but still green; apples may be allowed to get riper than they usually are for export; plums should be taken just before softening begins, and so on. It is essential to the successful exportation of Australian fruit that it should be cooled almost to the freezing point of water, in cool chambers on land before shipment, and that the shipping companies should be expected only to keep it cold, and not to do any of the cooling, for which the arrangements on board ship are absolutely unsuitable. Mr. Sutherland is emphatic in asserting that blunders will be the order of the day until the preservative effect of cold is taken advantage of for fruit in the same manner as for butter, meat and eggs. It is not a matter of barely getting the fruit home in saleable condition, but so that it has weeks of vitality in it, so that distributors can handle it without risk, for which the producer always has to pay. For a large trade the retailer's risk must be reduced to a minimum; and for the exporter there is this blessing, that in reducing the English retailer's risks, he is reducing his own still more."

CORRESPONDENCE RE RUBBER.

THE following correspondence will interest those in India who have gone in for rubber:—

Resident-General's Office, Selangor, Malay Peninsula, Kuala Lumpur, 15th December, 1897.

To the Secretary, Planters' Association, Selangor.

SIR,—I am directed to enclose copy of a preliminary report by the Superintendent of Government Plantations, Perak, on the tapping of the Government Para rubber trees at Kuala Kangsar, which the Resident-General thinks may possibly be of interest to the m of the Planters' Association.—I have, &c., A. BUTLER, *Secre the Resident-General, F. M. S.*

Government Plantations Office, Taiping, November 24th, 1

To the Secretary to Government, Perak.

SIR,—In reply to S. G. $\frac{6464}{97}$, I have the honour to forw following report on the work done in connection with Para trees at Kuala Kangsar.

2. Some months ago the Director of Kew wrote to me. I heard from Sir Hugh Low that the Kuala Kangsar trees exude when tapped, and asked, with a view to information, reason.

3. It will be seen from this report that the work for the not yet completed, and I would particularly point out th experiments have not been conducted to test how much ea will yield, for the reason that these trees are of much greate to the Government at the present time as seed-bearers than producers: as an instance of this, I would mention that appl for 70,000 seeds have been received for the current year (of 25,000 have been supplied) and an application filed for 100,00 next year.

4. The Para rubber trees (*Hevea Braziliensis*) at Kuala K were first tapped during the month of August, and the wo been proceeding up to the present time. The frequent we have delayed the work considerably. At the end of Octo trees had been tapped, and 88 of dry marketable rubber pr Most of the trees tapped were six years' old, and from these t average of 10 ozs. of dry rubber has been obtained. A few trees years' old, produced 3 lbs. each, but in no instance were the t exhaustive. Two samples have been sent to Mincing Lane for and valuation.

5. *Tapping.*—The trees were tapped with almost V-shape a few inches apart, with a channel down the centre from th branches to the base. An ordinary pruning knife was used the first cuts, and about a quarter of the outer bark remov being taken not to cut too deeply. So soon as this comme callous—which varies from two to several days—the edges cuts were lightly shaved with a very sharp chisel every day occasional interval until the decided quantity has been exude rubber was collected in locally-made tin boxes 6″×4″×2″, n the base of the tree, with the lid partially opened so as to wet or dirt from falling in. When full, this was allowed to the water pressed out (a pinch of salt appears to expedite the lation) and then kept in smoke for about a week to prevent

6. *Time of tapping.*—Para rubber has a short resting seas most of the leaves fall off. The flowers usually appear fi when the tree is in full foliage tapping can be commenc carried on with different trees—until again deciduous. T cuts can be made at any time of the day, and may be left fo in the event of exceptionally wet weather, but the sub tappings should always be done in the evenings, as the rubb ceases to exude with the influence of the sun.

7. *Planting.*—Most of the trees at Kuala Kangsar are pla wet land, subject to be flooded every year. Some, however, high dry land, but my experiments are not sufficiently com say if there is any difference in the yield of rubber on dry wet land.

8. The tree appears to be the most adaptable of any rubb growing from swampy lands to an elevation of several hund and seems to thrive on any ordinary soil. The material poi cultivation is close planting. I recommend not more than apart.

9. *Remarks.*—I am of opinion that a tree 5—6 years' old is of producing $1\frac{1}{4}$ lbs., and a tree 13 years' old 5 lbs. of rubber injury. The cost of tapping, drying, and preparing, I shou mate, working on a large scale, about 30 cents per lb. The

MILLIE & REDMOND, late P. THOMPSON & CO., *Ootacamund, Engineers and Contractors.*

on value for dry rubber is from 3*s.* 6*d.* to 3*s.* 8*d.* (sterling) per lb. ld add shat I shall be able to offer some further remarks when periments are completed, and when I receive an opinion on mples sent home.—I have, etc., R. DERRY, *Superintendent of ment Gardens.*

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ident-General's Office, Perak, Malay Peninsula, Taiping, 4th ary, 1898.

he Secretary, United Planters' Association, F. M. S., Klang.

—In continuation of my letter, No. 3281-97, of the 15th ultimo, directed by the Acting Resident-General to enclose copy of a of Mr. W. Figg, of the firm of Messrs. W. J. and H. Thompson, ing on the samples of Para rubber obtained from the trees at Kangsar.

I am also to call your attention to the report to Mr. L. Wray, or and State Geologist, Perak, recently published in the *or Government Gasette.*—I have, etc., A. BUTLER, *Secretary to nt-General, F. M. S.*

Mincing Lane, E.C., 19th November, 1897.

R. DERRY.

R SIR,—I have received your samples of Para rubber and beg ort on same as follows:—

1. Matta Grossa in character, fairly clear, imperfectly d, but apparently good, strong rubber.

. 2. Matta Grossa in character, fairly clear, slightly prefer- Value 2*s.* 9*d.* to 3*s.* per lb.

market is very good, and you should ship all you can; try and it a little more and keep the bulk up to the standard you sent As a rule the rubber from the Straits is much inferior to that g from South America, but your samples are quite equal to You seem to have more carefully prepared it; ordinary Straits r, imperfectly collected and prepared, is worth about 1*s.* per lb. an the samples you have sent. I hope to do fairly well for the pepper; the market keeps good.—Yours, etc., W. FIGG, for and H. THOMPSON.

* Prepared with a pinch of salt.

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tly, we insert a letter from the Director of the Ceylon ical Gardens:—

al Botanic Gardens, Peradeniya, April 14, 1898.

Hon'ble the Colonial Secretary.

—I have the honour to report that during the week ended 2nd last, I visited the plantations of Para India rubber at oda and Yattipowa made in 1890-93 by the Forest Department, so some of the estates near Neboda, on which a considerable t of rubber has been planted.

The plantations belonging to the Forest Department are in ood order, and in a year or two many of the trees will be in ion to allow of experiments in tapping being made on them, uch to be desired.

On Culloden estate near Neboda, which I have examined in detail, thanks to the courtesy of the visiting agent, Mr. Grigson, are about 30,000 or more trees in very fine order. The older were grown from seed or cuttings obtained from Henaratgoda . Of recent years the estate has had much seed of its own, is year their crop is expected to greatly exceed that at the al of Government.

A finer lot of trees than those on this estate and the neigh- g estates it would be difficult to find. The oldest trees are urteen years' old, but rival the trees twenty-one years' old at atgoda. This is partly due to the fact that the Culloden trees re widely separated than those at Henaratgoda, being planted ; tea at distances of about 30 feet, partly to the more favourable d conditions of the Kalutara district.

A few experimental tappings have been made on the older n this estate and have shown very good results, better than those obtained at Henaratgoda, on which the data of profit and loss given in the circular recently issued by this department were based. As at present the demand for seed makes it more profitable to keep the trees for seed; these experiments are not being continued just now.

6. From what I saw of the condition of the trees and the results of these tappings, I am strongly confirmed in my previous opinion that the cultivation of rubber bids fair to prove a profitable industry in Ceylon and a useful adjunct to the larger industry of tea and cocoanut cultivation,—I am, &c.,

JOHN C. WILLIS, *Director.*

CEYLON PROPRIETARY TEA ESTATES.

THE report of the Directors of the Ceylon Proprietary Tea Estates Company, Limited, for the year ended the 31st of December last, submitted at the first annual ordinary general meeting held in London on the 25th ultimo, states that the net amount at credit of profit and loss account, after writing off half of the preliminary expenses, providing for general expenses, income-tax, etc., is £6,277. Debenture interest paid to 30th of September, 1897, less income-tax, amounted to £544; three months' debenture interest to 31st of December, 1897, less income-tax, amounted to £181; preference dividends paid for 1897, less income-tax, amounted to £1,242; *interim* dividend of 2 per cent. on the ordinary shares paid to 30th of October, 1897, amounted to £1,549. It is proposed to pay a final dividend of 3 per cent. on the ordinary shares, making 5 per cent. in all, free of income-tax, which will absorb £2,354, and to carry forward to next year a balance of £410. The Directors regret that, owing to a high rate of exchange, the fall in the price of tea, and the high price of rice consequent on the famine in India, the profits for the first year's working have fallen short of anticipations. The crop of tea from the Company's estates was 868,710lbs.: 89,307lbs. were manufactured for others, and 32,799lbs. from bought leaf; the total output of the factories amounting to 990,816lbs. of tea. The yield of tea was 413lbs. per acre, the gross price realised in London and Ceylon was equivalent to 6·940 per lb. and average rate of exchange was 1s. 3-15/32d. for the year. The following is a summary of the acreages of the Company's properties:—Tea in bearing, 2,100 acres; tea not in bearing, 111 acres; jungle, timber, clearings, scrubs and patena, 847 acres: total, 3,058 acres. A new factory has been built on the Radella estate during the year, and other necessary additions to factories have been undertaken. The estates are reported on as being in good order, and arrangements are made to plant about 100 acres with tea and 30 acres with fuel trees during the current year.—*The Planter.*

The Wynaad and the Planting Industry of Southern India, by FRANCIS FORD. Re.1.

The Planting Directory of South India. Re.1-8.

Tea Planting from Seed to Cup in Tamil, with English Translation. Rs.2.

Sketch History of the Planting History of Wynaad, by the late ADOLPHUS ARTHUR WRIGHT. Re.1-8.

Report of Observations of Injurious Insects and Common Crop Pests during the year 1883, with Methods of Prevention and Remedy by Miss ELEANOR A. ORMEROD, F.R.Met.Soc., &c. Re.1-8.

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Bill Hooks, (Barcutties) 12″ blade, bright steel	„	18	0	0
Do. Kentish, with back, steel, 2¼ lbs. wt.	„			
Bushel Measures (Galvanized), Imperial Stnd.	each	15	0	0
Buckets (Galvanized), various sizes	from per doz.	16	8	0
Watering Cans, (Galvanized) "Nonsuch," 2 gals.	each	4	0	0
Do. do. do. 2½ „		4	8	0
Steel Digging Forks. *Steel strapped all along handle.*				
4 & 3 pronged	per doz. Rs. 39-0-0 &	33	0	0
Grass Knives, socket handle, steel	per doz.	12	12	0
Hammers, 6, 7, & 8 lbs.	per lb.	0	6	0
Handles, Pickaxe, 3 ft. long (English Ash)	each	0	12	0
Do. 30″ long 3¾″ circ. (do)	„	0	6	0
Do. 16″ „ 3″ „ (do)	„	0	4	0
Do. Digging Fork	„	0	14	0
Lining Ropes, abt. 250 feet	„	8	12	0
Mamooties, Steel 10″x 8″ or 9″x 7″ abt. 4 lbs. wt.	per doz.	12	12	0
Do. Iron 10½ x 8½ or 9½ x 8 abt. 4 lbs. wt.	„	7	8	0
Quintanies, Steel 15″ × 6,″ 5½ lbs. weight	„	18	0	0
Do. 9½″ x 5,″ 3¼ „ „	„			
Manure Pans, (Galvd.) 7″ deep x 18″ top x 10″ bottom	„	23	4	0
Pitting Bars (Alavangoes), well-steeled points, 3″ spade end, 45″ long, 9 lbs. wt.	„	16	8	0
Pruning Knives, English make, best steel, 4″ blade	„	9	0	0
Do. Saws, do. do. 14″	„	18	0	0
Seamless Bags (for coffee transport to coast) 42″ x 20″	„	9	12	0
Shovels, round nose, T handle	„	12	12	0
Tea Transplanting Spades, steel, sharp edge	each			
Tea Sieves, brass No. 6, 8, 9, 10, 12 mesh	„	6	0	0
Do. do. bottoms do.	„	3	8	0

TEA REQUISITES—FOR PACKING.

CHESTS—MADE TO ORDER. *Deld. at Mettapollium, Palghat, Calicut.*

Full Chests 24 x 19 x 19 (outside) ½ in. planks	each	1	1	0
Half do 16 x 16 x 16 („)	do	0	13	3
Quarter do 14 x 12 x 10 („) ⅜	do	0	9	3

Any other dimensions at proportionate prices.

LEAD—BEST INCORRODIBLE. *Any other sizes obtained to order.*

127 sheets 37″ x 22″	per case of 2 cwt.	32	0	0
or 218 „ 25″ x 19″	„	32	0	0
„ 40 „ 84″ x 22″ for sides	„	30	0	0
„ 80 „ 21″ x 16″ „ tops and bottoms				
„ 72 „ 65″ x 19″ „ sides	„	30	0	0
„ 144 „ 14″ x 14″ „ tops and bottoms				
Solder (Sticks) per case of 1 cwt. Rs. 50, or per lb.		0	8	0
Soldering Fluid	per bottle	2	0	0
Hoop Steel ½″ (abt. 3,000 feet to the cwt.)	per cwt.	15	0	0

COFFEE PULPERS—*To order only. One month required for delivery.*

For Arabica. For Liberian.

Agents for:—MESSRS. WALKER SONS & Co., LD. *Price list and illustrated catalogue sent on application.*

		Rs.	A	P.
Copper Punched Cylinder cover 4′ x 2′	each	25	0	0
Do. Disc cover	„	9	0	0
Do. do. for Liberian	„	12	8	0

COIR MATTING—In rolls of 60 feet long x 3 feet wide.

Estate, Double, (coffee drying, etc.) Nos. 1 and 2, Rs. 2-8 &		2	4	0
Ordinary Bungalow Twill		7	0	0
Fine Machine-made Yarn		12	8	0
Superior Yarn		15	0	0

Coloured stripes to order. Samples sent on application.

IRON—GALVANIZED.

Continuous Iron. For roofing, etc. In rolls of 100 ft. x 2 ft. 28 G. (per ft., 7 as.)	per roll			
Corrugated Iron sheets 24 G. 2 ft. wide (English) Lengths 5, 6, 7, 8, 9, 10 ft. Approx. weight 14, 16, 19, 22, 24, 27 lbs.	per cwt.	10	0	0
Iron Ridging, 6 ft. x 6 inch lap.	per length	1	8	0
Bolts and Nuts, ¼″ x ¾″	per gross	1	14	0
Rivets (*abt. 64 to the lb.*)	per lb.	0	4	6
Washers, Iron (*abt. 70 to the lb.*)	„	0	4	6
Do. Lead (*abt. 50 to the lb.*)	„	0	6	0
Screws 2½ in. (*abt. 28 to the lb.*)	„	0	7	0
Lead headed nails 2½ in. (*abt. 20 to the lb.*)	„	0	6	0

NAILS—

Cut Rose Nails 1 in. (*abt. 500 to the lb.*)	per lb.	0	3	0
Do. 2½ in. („ 90 „)	„	0	2	3

Wire Nails, French.

	1″	1½″	2″	2½″	3″	4″
℔ 1 cwt. keg Rs.	13/12	11/8	11/	10/8	10/	9/8
℔ pound annas	2¾	2½	2¼	2¼	2	1¾
Nails ℔ lb. (*abt.*)	400	200	160	100	80	35

Triangular Barbed Wire Nails.

	1″	1½″	2″	2½″	3″	4″
℔ 1 cwt. keg Rs.	14/	12/	11/	10/8	10/	9/8
℔ pound annas	2¾	2½	2¼	2¼	2	1¾
Nails ℔ lb. (*abt.*)	500	290	160	110	75	40

ASPHALTE	per ton	69	0	0
PORTLAND CEMENT—John Bazely White and Bros. "Whites" Best ℔ barrel of abt. 375 lbs. net		11	12	0
Sole Agents for S. Canara, Coorg, Malabar, Coimbatore, Travancore.				
COAL TAR, Best ℔ barrel of abt. 4 cwts. gross		20	0	0
WINDOW GLASS—per case of 100 sq. ft. (all sound) 12×10, 14×12, 16×14, 18×14, 20×16, 22×18, 24×20, 28×24, 36×24 and 36×30.		15	0	0

PRINTING—All kinds of Estate Weekly and Monthly Report and Account Forms, executed at our KARAPARUMBA PRESS.

MANURES.

Fish Guano. Steamed Bone Meal. Poonacs:—Castor, Mowra, Hoongay. **Saltpetre, Crude and Refined** (Nitrate of Potash.) **Nitrate of Soda. Sulphate of Ammonia. Sulphate of Potash. Muriate of Potash. Superphosphates. Phosphate Powder. Kainits Salts.**

Mixtures can be made in any proportion without extra charge. **Packing** can be done to suit transport by bullocks, etc.

Prices will be furnished on application for delivery either at our Karaparumba Works, Calicut, the Calicut Railway Station, Palghat, Mettapollium, Salem, or at our godowns in Cochin, Tellicherry, Mangalore and other places.

Quotations will be obtained and orders booked for any Manures not kept in stock.

F.r.m.

BRITISH GROWN TEA.

WE quote the following article and letter from the *Financial Times*:—

"Owing to the fall in the price of Indian and Ceylon tea, and the maintenance of the artificial rates of exchange on India, the dividends on last year's workings of tea-planting companies are likely to be on a much smaller scale than those of previous years, except in those cases where there are reserve funds for equalising dividends. From information we have received, we believed the remedy for the present depressed state of the tea market is entirely in the hands of the companies themselves. As combinations are now the order of the day, we do not see why they could not advantageously combine to diminish the output of the lower grades of common tea, which, it seems, do not pay to produce at present low prices. We are told that when the prices of common tea were much higher than they are now, owners of estates in the low-lying districts, both in India and Ceylon, adopted the system of plucking one leaf more than was gathered in the higher districts for the purpose of compensating themselves by quantity for comparative inferiority of quality. It appears that this method of working low estates answered very well as long as prices of the grades obtained from the manufacture of the extra leaf were remunerative; but now the production of these grades has become unprofitable, and it is suggested that all tea companies who own estates on which the coarser plucking is practised should agree to discontinue it for a defined period. We learn that this can be done without the slightest interference with the ordinary working of the estates, and though it may increase the cost of the better grades of the tea produced on these estates, the advance in prices of all qualities which would follow from the decreased supply would more than compensate for the small increase in the cost of production. The fact is, as statistics prove, the production and consumption of British grown tea are so nearly equalised that an increase in consumption, which may naturally be looked for from present low prices, or a decrease in the supply would cause an appreciable reaction in market values. As the first is a slow process, the quickest and most certain way of obtaining the desired improvement would be to discontinue the supply of those grades which are now selling at from 4*d*. to 5*d*. per pound in bond and which consumers do not want. There can be little doubt that if proprietors of estates would agree to leave the fourth leaf on their bushes, such a reduction in the supply of tea would take place as would enhance prices of all qualities to a point that would satisfy them, and at the same time not be high enough to discourage consumption, though it would probably curtail the profits of the big retailers who can well afford it. However practicable and advantageous the plan of adopting temporarily the system of finer plucking may be, it would not do to carry it too far. If that is done it will probably let in again large quantities of Chinese common Congu, the importation of which for the last eighteen months the English Government has been striving to increase by giving it a protection of at least 40 per cent. over British grown tea. The reason why this protection of China and Japan tea did not lead to increased imports last year is because consumers fully recognise the comparative cheapness and better qualities of British machine-made tea, and no longer appreciate the peculiar and distinctive flavour China tea acquires from being manufactured by the clammy hands of Chinese coolies. Still it is very difficult to compete with a highly-protected article, and we therefore warn British tea planters to watch Chinese experts next season and the vagaries of our own Government."

"SIR,—My attention has been called to a leading article, under the above heading in your issue of this date, on the conten which, however, I crave your indulgence to make a few rem

"1. *Profits for Season* 1897.—While you are correct i view that these, owing to high exchange and overhead prices of tea, are likely to be curtailed, it is hardly corre opine that 'dividends will,' all round, 'be on a much sm scale,' to use your own words. Undoubtedly, the dividen those companies which in past favourable seasons have mad provision for 'a rainy day' will have to be reduced, in the larger number of instances, where reasonable p sion of this sort has been made, there is not likely to be diminution in actual dividends, though the profit earned ma less. The three principal Ceylon companies which have so issued their reports—namely, the Ceylon Tea Plantations pany, the Standard Company, and the Eastern Produce pany—certainly show small signs of decadence (despite unfavourable season), and they cannot fail to be most satisfa to their shareholders; while among the leading Indian compa —with a few exceptions (where conditions have been unus unfavourable)—there is not likely to be much cutting down

"2. *Quality* vs. *Quality of Produce*.—While there is no d some truth in what you say as regards managers having their power to control the quality by regulation plucking, is not always practicable, being chiefly questions of labour of climatic conditions ruling at different periods of the produ (flushing) season, which extends over nine months of the y The constant endeavour nowadays, both of managers on the and of the home administrations of most of the leading panies, is to produce the best possible quality of tea. Du the year just closed, however, conditions have been in I especially most abnormal, weather being frequently unfav able and the health of the labour force bad, with heavy de rolls, and this is the chief reason of the coarse quality produ This will probably be entirely reversed next season. Ind there are not wanting those who believed that there is some of an excessive supply during 1898 of fine grade tea w may cause a fall in the price of fine Assams. It should noted, moreover, that there have been even in 1897 m notable exceptions of gardens—where conditions were n favourable—sending very fine tea, notably the Assam Compa Doom Dooma, and Jhanzie in Assam, and the Lebong and o Darjeeling gardens.

"3. *Low-lying Districts*.—You appear to have fallen a l into error in regard to this point. It is true that in Ceylo where the best tea is grown at an elevation of from 1,000 u 4,000 or 5,000 ft.—the produce of the districts lying at sea l is mostly poor, and the same remark applies to the produce the so-called bheels or marshes in Cachar and Sylhet. Bu regards Assam—that is, the whole valley of the Brahmaputr which produces the strongest teas, and also parts of Sylhet, even the Dooars, virtually the whole tea planted area is onl few feet above river level, with no deleterious effect on qual but the reverse.

"4. *Return of Chinese Competition*.—You are quite corr no doubt, in the view that any attempt to unduly raise the p of Indian and Ceylon tea, or to seriously diminish the sup of the less highly-priced grades, might possibly give a renew impetus to the cheap China Congou import. This, howeve believe is less to be feared, so far as home consumption is c cerned, than by reason of its standing in the way of, or ha capping, the export trade to Colonial and foreign countries, which direction, much more than to increase consumption Great Britain itself, the expansion, in consumption, counteractive of over-production of Indian and Ceylon tea mainly to be sought."

"I am, &c.,
GEO. SEATON."

Indian Tea Share Exchange, 120, Bishopsgate Street With E.C., April 16, 1898.—*The Planter*.

MARKET REPORT.

COFFEE.

Messrs. R. J. Rouse & Co's Weekly Coffee Report (May 6, 1898) says:—
e heavy supplies in Public Sale show no signs of falling off at present, l the market on the whole is well maintained.
About 7,300 bags East India were offered and mostly sold, fine Home ade parcels still attracting keen competition, but medium and common ts, in very small lots, were rather easier.
Large quantities of Costa Rica and other Central American were cata- ued, bold colory grades realised full prices, whilst less desirable kinds l steadily.
Futures have been irregular during the past week, and quotations at close are unchanged for near positions and 1/- lower for distant.

Messrs. Wm. Jas. and Hy. Thompson's Report of the Colonial Markets for Week ending May 4th, 1898, says:—Bank rate 4%. Bombay Exchange ses at 1s. $3\frac{3}{32}$d. Brazil Exchange $5\frac{11}{16}$d. Rupee paper $3\frac{1}{2}$% $62\frac{1}{4}$. ver $25\frac{7}{8}$d. per oz.
Our spot market continues very steady, the heavy supplies at auctions eting with a good demand at very full prices for good and fine; other alities selling about steadily.
Brazil markets are somewhat lower.
Daily receipts averaged 9,100 bags in Rio and 9,000 bags in Santos.
Futures have fluctuated, closing dull at 6d per cwt. below the late hest, viz.:—Good average Santos in Havre, September delivery, fcs. 50, in Hamburg pf. $30\frac{1}{2}$, and No. 7 low ordinary Rio in New York $5.80.
To-day's London official quotations are:—

	May	July	Sept.	Dec., '98.	Mar.	May, '99.
SANTOS ...	29/-	29/3	30/-	30/6	31/-	31/6

We quote:—

ylon, mid. to good mid.	96/	@107/	
Do. small to low mid.	80/	„ 93/	
st India, mid. to good mid ...	77/	„ 92/	
Do. small to low mid.	60/	„ 75/	
atemala, mid. to fine...	70/	„ 96/	
Do. good ord. to low mid...	54/	„ 68/	
vador, good ord. foxy greenish...	40/	„ 42/	
Costa Rica, mid. to fine...	72/	@106/	
Do. ord. to low middling.	46/	„ 70/	
Jamaica, good to fine ord.	33/	„ 51/	
Do. greenish to fine colory...	70/	„ 125/	
African ...	26/	„ 29/	
Columbian, ordinary ...	35/	„ 43/	
Do. good ord. to low mid...	44/	„ 64/	
Do. mid. to fine...	65/	„ 93/	

Receipts in Brazil to 4th May compare as follows with previous rs:—

	1897-98.	1896-97.	1895-96.
	Bags.	Bags.	Bags.
RIO	3,896,000	3,171,000	2,065,000
SANTOS	5,792,000	4,764,000	2,805,000
	9,688,000	7,935,000	4,870,000

In Sale—

03 bags East India.	3,846 bags Mysore nearly all sold ...	59/	@ 117/
	1,676 bags Coorg „ ...	57/6	„ 106/
	119 bags Naidoobatum „ ...	64/6	„ 105/
	2,358 bags Neilgherry „ ...	52/	„ 105/
	328 bags Shevaroy	57/	„ 101/
	638 bags Wynaad	54/	„ 98/
	138 bags Nelliampathy, partly sold.	71/6	„ —
752 bags Costa Rica part London cleaned, nearly all sold...		34/6	„ 109/
694 bags Guatemala „ „ „ ...		44/	„ 81/6
340 bags Nicaragua		43/	„ 63/
710 bags Salvador		38/	„ 84/
26 bags Honduras		61/	„ —
797 bags Venezuelan, part London cleaned, part sold ...		35/6	„ 95/
26 bags Liberian Johore		30/6	„ —
175 bags South Sea Islands		20/	„ 59/
85 bags Hayti damaged		26/6	„ —
41 bags Mexican		66/6	„ —
68 bags Columbian, part London cleaned, nearly all sold...		38/6	„ 85/6
333 bags Vera Paz and Coban, part London cleaned, chiefly sold		41/	„ 108/
8 tierces 291 barrels Jamaica, chiefly sold ...		37/6	„ 73/
9 casks 8 barrels Ceylon		27/	„ 51/

On Quay Terms:—
210 bags washed Santos bought in.
72 bags Rio bought in
anded last week ...1,667 *tons. Deliveries* ...1,163 *tons. Stock*...14,693 *tons.*
Do. last year ...1,438 „ „ ...976 „ „ ...13,763 „

TEA.

Messrs. Gow, Wilson and Stanton's Indian, Ceylon, and Java Tea Report, dated May 6th, 1898, says:—

QUANTITY BROUGHT TO AUCTION IN LONDON FROM 1ST JUNE TO DATE.

	Indian.	Ceylon.	Java.
1897-1898...	1,533,105 packages.	1,107,575 packages.	41,399 packages.
1896-1897...	1,505,501 „	1,048,784 „	42,441 „

30,778 *pkgs.* INDIAN
23,999 „ CEYLON
684 „ JAVA
} Total 55,461 packages were offered in public auction this week.

The improvement in deliveries which set in during March, after the previous falling away, was still further emphasized by the satisfactory clearances in April.

Indian. Good general bidding kept the market steady in spite of another week of comparatively heavy offerings. Choice liquoring parcels further hardened in value, but poor Pekoes were occasionally a trifle easier. The Official Telegram gives exports for the second half of April as 354,000 lbs., against 276,000 lbs. last year, and from 1st April to 30th April 410,000 lbs., against 361,000 lbs.

Week's av. of Tea sold on Garden Account, 1898, 16,625 pkgs., av. 7·75d. 1897, 10,578 pkgs., av. 7d.

	1898.		1897.		1st June to date 1897-8.		1st June to date 1896-7.	
	Pkgs.	Price.	Pkgs.	Price.	Pkgs.	Price.	Pkgs.	Price.
Assam ...	4,914	10·19	1,828	$7\frac{3}{4}$	528,979	9·90	507,732	10·18
Cachar & Sylhet...	6,390	6·44	7,469	$6\frac{3}{4}$	299,272	6·87	292,284	7·34
Chittagong ...	—	—	—	—	5,686	7·15	3,298	7·48
Chota Nagpore ...	94	5	102	$4\frac{3}{4}$	1,920	5·08	2,046	5·11
Darjeeling ...	—	—	—	—	66,721	11·10	57,915	1/·40
Dooars ...	3,933	7·19	73	9	143,433	7·45	129,574	7·55
Kangra, &c. ...	—	—	186	$5\frac{1}{4}$	8,481	7·11	6,002	7·07
Neilgherry ...	91	675	134	$7\frac{1}{2}$	6,294	6·91	4,194	7·02
Terai ...	—	—	22	$5\frac{1}{4}$	20,016	7·19	13,325	7·21
Travancore ...	1,203	6·50	764	7	33,396	6·36	28,949	7

Total sold on Garden Account 1st June to date 1898, 1,113,726 pkgs., av. 8·67d. 1897, 1,045,502 pkgs., av. 9·02d.

Comparative prices of Indian Tea in London.

		1898.	1897.	1896.	1895.
DUST.	(Fair ordinary, dark liquor) ...	$3\frac{1}{4}$d	4d	5d	$4\frac{1}{2}$d.
FANNINGS.	(Red to brown, strong rough liquor) ...	$3\frac{3}{4}$d	4d	$4\frac{3}{4}$d	$5\frac{1}{4}$d
BROKEN TEA.	(Brownish to blackish, strong liquor) ...	6d	$6\frac{3}{4}$d	$7\frac{1}{4}$d	$7\frac{1}{2}$d
PEK. SOUG.	(Blackish greyish, useful liquor).	$6\frac{1}{2}$d	7d	8d	8d
PEKOE.	(Greyish to blackish, some tip, useful liquor) ...	$7\frac{1}{4}$d	$8\frac{1}{2}$d	$9\frac{1}{4}$d	$8\frac{1}{2}$d
PEK. SOUG.	(Blackish greyish, inferior liquor).	5d	$5\frac{1}{4}$d	6d	$6\frac{1}{2}$d
PEKOE.	(Blackish greyish, some tip, inferior liquor) ...	$5\frac{1}{2}$d	$6\frac{1}{4}$d	7d	7d

Ceylon. No material change took place in the market, the late advance being on the whole maintained with good general competition. Many of the Teas now arriving are of very fair quality. The Official wire gives exports to U.K. for April as 6,750,000 lbs., against 9,500,000 lbs. last year, and from 1st Jan. as 31,000,000 lbs. against 33,500,000 lbs. last year, and the estimated quantity for the current month as 9¼ to 10 million lbs. Avg. price is 7·62d. agst. rather under $7\frac{1}{2}$d. sameweek 1897.
Ceylon tea sold on Garden Account 1st January to date 1898, 395,075 pkgs., av. 7·63d. 1897, 367,941 pkgs., av. 7·95d.

Comparative prices of Ceylon Tea in London.

		1898.	1897.	1896.	1895.
PEKOE SOUG.	(Ordinary leaf; fair liquor) ...	6d	$6\frac{1}{4}$d	7d	$7\frac{1}{4}$d
PEKOE	(Ordinary leaf, little twist; fair liquor) ...	7d	7d	$8\frac{1}{4}$d	$8\frac{1}{4}$d
PEKOE SOUG.	(Rather bold leaf; indifferent liquor) ...	5d	5d	$5\frac{3}{4}$d	$6\frac{1}{4}$d
PEKOE	(Somewhat bold leaf; indifferent liquor) ...	$5\frac{1}{4}$d	$5\frac{3}{4}$d	$6\frac{1}{4}$d	$7\frac{1}{4}$d

Java. With a strong market the Teas were mostly sold in the room at rather better prices.

MOVEMENTS of TEA in LONDON (in lbs.) during APRIL, from TEA BROKERS' ASSOCIATION FIGU

	Imports.			Deliveries.		
	1898.	1897.	1896.	1898.	1897.	1896
INDIAN	1,560,967	1,297,422	1,052,932	11,154,641	9,613,118	10,436,7
CEYLON	8,290,210	8,860,124	6,674,008	7,603,006	6,676,358	6,408,3
JAVA	338,660	420,630	335,230	292,740	254,590	292,3
CHINA, ETC.	202,016	93,416	440,572	2,670,390	3,458,176	3,216,4
TOTAL lbs. ...	10,391,853	10,671,592	8,502,742	21,720,777	19,002,242	20,353,0

FROM 1st JUNE TO END OF MARCH.

	Imports.			Deliveries.			Stock.		
	1897-8.	1896-7.	1895-6.	1897-8.	1896-7.	1895-6.	1897.	1896.	1
INDIAN	134,950,182	131,155,971	117,696,216	117,727,579	114,932,927	110,991,637	49,457,815	42,973,654	36,34
CEYLON	87,072,964	83,930,672	75,403,706	88,264,598	81,757,352	74,284,720	18,761,546	20,730,854	17,84
JAVA	3,269,910	3,278,380	3,587,220	2,275,510	3,328,500	3,442,530	746,620	937,580	1,08
CHINA, ETC.	31,932,848	32,725,588	40,983,943	30,651,059	36,286,082	38,233,192	14,285,128	16,079,101	22,46
TOTAL lbs. ...	257,225,904	251,096,611	236,671,085	239,918,746	236,304,861	226,872,079	83,251,109	80,721,189	77,73

Bank Rate 4 per cent. Exchange on London three months sight:—Calcutta 1/4⅛. Colombo 1/4⅛.

PUBLIC SALE OF SOUTH INDIAN TEA.

(AVERAGE FOR ALL INDIA 7·75*d.*) *May 6th.*

GARDEN.	Total.	Average.	Broken Org. Pek. or Flowery Pekoe.		Pekoe and Unassorted.		Broken Pekoe.		Pekoe Souchong.		Broken and Souchong.		Fannings, and Vari	
	Quantity	Price.	Quantity	Price.	Quantity	Price.	Quantity	Price.	Quantity	Price.	Quantity	Price.	Quantity	P
Neilgherry ...														
Seaforth ...	91½c	6¾	35½c	7	31½c	7	...	...	25½c	6	...	...	...	
Travancore ...	**1203 p**	**6·50**												
Cheroot Malay ...	35 p	5	...	...	26½c	5¼	...	...	4	4¾	5½c	4¾	...	
Glenmore ...	95½c	5¾	...	...	68½c	5½	27½c	6½	...	...	...	...	...	
Merchiston ...	25 p	5¾	14½c	6½	8	5¼	...	...	2	5	...	...	1½c	
Parvithi ...	255½c	6¼	87½c	7½	78½c	5¾	...	...	76½c	5½	...	...	14½c	
Poonmudi ...	122 p	5¾	...	...	61	5¾	37½c	6¾	...	...	10	5¼	14½c	
Sth Trav T Co KK..	246	7¼	160	6¾8¼	40	5¾	...	...	...	...	...	...	46	
,, Venture...	200	6½	60	7¼7¾	117	6 6½	...	...	23	5½	...	...	...	
Stagbrook ...	74	6¼	24	7 7¼	27	6½	...	...	16	6	...	...	7	
Travancr Est BA ...	151	6¾	...	...	28	6½	67	7¾ 8	13	5¾	10	5¼	33	

PLANTING OPINION.

A WEEKLY JOURNAL

WRITTEN BY PLANTERS FOR PLANTERS.

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ADVERTISEMENTS.—From the 1st October, 1897, the charge for advertisements will be: 4 as. per line for the first, 3 as. for the second, 2 as. for the third and succeeding insertions. Five-line advertisements m Subscribers will be inserted for three issues for one rupee; non-Subibers will be charged two rupees.

DOMESTIC OCCURRENCE.—The fee for inserting a domestic urrence will be *One Rupee* for each insertion, payable in advance.

N.B.—Remittances should be sent to the Manager, "Planting Opinion," 12, Second Line Beach, Madras.

IMPORTANT NOTICE.

The Business Offices of this paper having now been removed to Madras, all remittances should be made payable to the Manager of *Planting Opinion*, 11 and 12, Second Line Beach, Madras, who will also attend to all advertisements, &c.

Letters to the Editor should be addressed to Coonoor, as usual.

SEASON REPORTS.

TO OUR SEASON REPORTERS.

Please post your next reports to reach Madras on Friday, the 10th June, 1898.

Season Reports should be sent to the Printers, Messrs. ADDISON & Co., direct, and not to *Planting Opinion* Office.

Nilgiris.

COONOOR, *2nd June.—Weather.*—The very favourable weather continues and is doing great good to all plantation and field crops. *Crops.*—Coffee is filling out, tea is flushing strongly, and field crops are growing well. Rain for past month 5 inches. *General Health.*—Health very indifferent still, several planters being down with a bad goes of acute fever. *Labour.*—Labour abundant. *Interesting Items.*—Luckily we don't get much S. W. rain here, so the unhappy railway *may* be opened before Christmas, but I strongly doubt it.

NOTES.

Japan tea in Russia.

It is grimly pleasant to hear that our rivals the Japs do not find the work of opening up new markets any easier than we do. Russia, into which they are trying to force a way, has not so far shown itself very keen on the change.

Produce imports into Britain.

Last month was a slack time for imports of plantation produce. Coffee fell off by £137,000, and tea by £79,000, but in cocoa there was an increase of £55,000, and in tobacco £93,000. Wheat, however, shows a great increase both from America and India.

Value of coal ash as a manure.

A correspondent recently asked us if coal ashes possessed any manurial value. The manurial value of ashes consisting almost wholly on the phosphoric acid and potash they contain coal ash, which contains only traces of potash, and but 0·16 of phosphoric acid cannot be said to be worth much as a plant food. Its mechanical value, however, may be great under certain circumstances. As wood ashes differ so widely in their manurial value, (from 3 to 35 per cent. in potash, and 0·45 to 2·03 in phosphoric acid) it is just possible that our correspondent's coal ash may likeuise differ from the ordinary variety.

To use ashes.

In another column we reprint an interesting article from a home paper on the value and use of wood ashes. The extraordinary value of swamp-elm ash (35·37 per cent. of potash) compared with the usual 4 per cent. sample, shows that it would be well worth while conducting investigations in the different values of Indian wood ashes.

Another point worthy of note is that ash should never be used with cattle-manure, or, we presume, any animal nitrogenous manure, as it tends to liberate the ammonia. It should be applied alone, as a top-dressing if possible. Its use on heavy humus-rich soil is usually most marked, as its "digestive" powers are quite as valuable in many cases as the direct food it affords to the plant.

Leaf disease in America.

We direct the special attention of our readers to an article from the Hawaian *Planters' Monthly* that we reprint elsewhere on a curious coffee leaf disease that is getting formidable in Guatemala. It is named *Stilbum flaridum*, and is a vegetable fungus well-known in Costa Rica, Venezuela and Jamaica. From the description given the fungus seems a very near relation of our fell enemy, *Hemaleia vastatrix*, if it is not indeed the real Simon pure. It first appears as a little brown spot, about the size of a pea, on the leaf. Many of these spots are sometimes found on each leaf. In the centre is a little orange red growth, about the size of a dot, which under the microscope appears like a little ball on a stem. Under the action of the fungus, the leaves shrivel up and drop off, and in consequence the berries act in a similar manner.

The Indian tea estimate.

The crop for the present season is estimated by the Indian Tea Association at over 158½ million pounds, being nearly 10½ millions over the actual outturn of last year. Estimating shipments to America, the Colonies and other places with local consumption at 18 millions, there will remain about 140½ million lbs. for export to Great Britain. Of the total, Assam is credited with nearly 64 millions Sylhet, Dovars and Cachar at from 22 to 26 millions each and Darjeeling at 8 millions. South India, as usual, is not represented in the above estimate, though the exports considerably exceed those of Chittagong, Chota-Nagpore, and Kangra, which are all found in the list.

The exports of tea in April from Calcutta are well below those of last year, but considerably higher again than in 1896. Ceylon exports from the beginning of the year are over 33½ million lbs., against almost 37 millions last year.

Edible mushrooms.

It will interest many to le that the "Round the Bungalo notes are continued, after a long interval, by "A Plante Wife." An interesting letter on how to distinguish edi mushrooms from those that are poisonous forms the subj of her paper. We do not believe, however, that there is a infallible guide or test that will enable the layman to p nounce with correctness on the edibility or poisonous nat of fungi. Nature has not, alas, taken any more trouble this matter than in others, to save mankind from trouble of acquiring knowledge. We would recomme our readers to make a thorough acquaintance with, say, th or four of the commonest varieties of edible mushrooms their district, and leave the rest severely alone. If ad to this they can recognize those poisonous varieties wh most closely resemble the edible ones they will do v well. Lastly, we may add that the most frequent cause cases of mushroom poisoning is not due to natura poisonous specimens, but to the intensely poison properties of all mushrooms if bruised or decayed in slightest degree.

The Ceylon Cacao disease.

An interesting *interim* report this disease has been issued by J. B. Carruthers, whose servi were procured last year by private enterprise. His inves gations have led him to the discovery that the main dise is a fungus, lodging on the bark and gradually destroyi the tissues of the stem, eventually killing the trace. Anot fungoid disease, and quite distinct from the bark disea attacks the fruit pods themselves and occasions a hea loss in crop, estimated at from 15 to 20 per cent. of yield of the affected trees. Mr. Carruthers suggests t one at least of the indispensable conditions (heat and mo ture) for fungoid growth, *i.e.*, moisture, could be remov by lessening the shade on cacao plantations. On the oth hand shade has proved most effectual in preserving cac from attacks of Helopeltis, though Helopeltis is by no mea so dangerous a pest as the canker.

As the report in question is deeply interesting from detailed description of the experimental steps taken investigating the disease, we publish a portion of it length in this issue.

Gathering tea seed.

Some planters have an idea t to allow seed to drop from the tr instead of picking it is a sure way of getting a badly g minating crop. As a matter of fact, this opinion is larg based on insufficient observation, having its rise from obse ing the behaviour of the first fallen seed from the tre which seed is usually empty and useless. Touching on t matter the Jorhat correspondent of the Calcutta *Plan* writes as follows :—

"Certainly at the very beginning of the seed season, say Sept ber-October, many seed fall that are not ripe, either being knoc down by birds or monkeys, also many seed with nothing inside th fall, and also bad seed ; so that the first seed brought in *picked off ground* is not nearly so reliable as that which is picked up later This is my experience of some years with Assam tea seed. Seed fall from the tree of its own accord later on than the above date give what I would consider a proof of its ripeness; in fact I never p my tea seed, but always shake it down. Of course tea seed left *some days* on the damp earth under the tree does not tend to impr it, and it should be picked up at once if possiple. Seed seems ripen very irregularly on tea trees, those seed at the very top of tree always being the last."

e coffee trade.

Last year business in coffee was anything but satisfactory to those ncerned in it, and reports from the centres of the trade the continent confirm this, says the *H. and C. Mail*, and can certainly confirm this as far as regards Indian nters. The importation of coffee into Holland was un-ecedentedly large, being as much as 1,415,093 bags. Its st remarkable feature was the jump in Santos coffee to 4,983 bags, the Dutch East Indies contribution being rdly more than that of ten years ago. Prices fell seriously Amsterdam, good ordinary Java dropping to 7*d.* per lb., d average Santos to 4*d.* at the close of the year. In ance coffee stocks more than doubled during 1897. At e port of Havre they were nearly thrice as large as at the d of the year as at the end of 1896. The Brazils furnished e major part of the increase. In the United States an itation is going on for a war duty on coffee, it being argued t the imposition of a duty of four or five cents a pound uld raise the value of the stocks in hand to that extent. was estimated at the beginning of last month that the ible supply in the States was 1,482,920 bags, compared h 940,606 bags a year previous.

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ate sanitation.

There exists a deal of misapprehension in some quarters as to the itary state of cooly quarters on South Indian estates, the lgiri correspondent of a Calcutta exchange apparently ng out of his way to create a misleading impression as to facts of the case. The main object of sanitation and dical supervision generally being to preserve public alth, it is obvious that as long as the desired result is ained, it matters little what special means are employed. most of our South Indian planting districts, epidemics, h as cholera, small-pox, and the like, are almost invariably nfined to the villages and towns, the estates themselves naining singularly immune. Advantages of good natural inage, one of the prime essentials of effective sanitation, a pply of good water, and really very tolerable climate, com-ed with a few common-sense precautions, are the causes the above desirable state of things. Added to which, the neral rule of avoiding the concentration of cooly lines on one spot, and the small size of our estates make the k of the South Indian planter an easy one in sanitary tters. If such results can be obtained in the natural ler of things, where is the sense of prating about Govern-nt-appointed Doctor-baboos, sanitary inspectors and the e ?

It is a curious thing, but we have always noticed that if nan wants to growl against his district, he chooses as a dium a journal as far removed as possible from the ality, the sincerity of the complaint being usually in erse ratio to the distance at which it finds expression.

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e Plague on Plan-ations.

With such an awful epidemic as plague, it is absolutely impossible for medical men or lay-men to pre-t its course in a continent like India. To an observant der of the daily papers, the odds seem slightly in favor of plague gradually penetrating through the length and eadth of the land, if the present unsuccessful methods of nbating the disease are not improved upon. The disastrous ect its advent would have on the planting industry, which industry necessitates the employment of a large and very ignorant body of unskilled labourers, should the disease gain access to the plantations, is not difficult to forecast. The inoculation scare, on spreading to Darjeeling, caused a great disturbance among the coolies, to the extent of some gardens being temporarily denuded of their labour. Luckily the scare passed off with the non-appearance of the plague. And as soon as plague and plague regulations invade planting districts, a general exodus will commence, fraught with disaster, if not ruin, to the industry.

Criticism on the present policy of dealing with the plague may seem out of place in these pages, but we cannot help reiterating the opinion that is daily gaining ground among the friendly critics of Government. And this opinion is that it is practically useless and worse than useless to initiate any panic-causing measures of dealing with the plague. Segregation may be excellent, inoculation may be an inviolable protection, but unless martial law is to become the rule in plague-stricken centres, these or any other similar measures will do more to spread the disease than if it were left to run its course, *unless the confidence of the people be gained first.* Very trite advice this, it may seem, but our worst blunders in India have been due to the unaccountable neglect of such obvious principles. To gain the confidence of an excitable, ignorant and fanatical population is no light matter, but nevertheless every nerve should be strained to attain that end.

The care of lamps.

In a certain household that I know, says a writer in the *Boston Journal of Commerce*, the lamps are a source of the greatest delight and comfort for they are always spotlessly clean, and they give a light that could not possibly be better or brighter. The reason for this is that the mistress, instead of depending upon any of her several servants to care for the lamps and clean them, herself bestows upon them the necessary attention. When these receive a thorough cleaning—once every six weeks—the reservoirs and burners are boiled in soda and water and dried before the fire, not on cloths, as these might have lint. The cloths that are used for the daily trimming and dusting are frequently boiled to remove the oil. The shades are polished, and the lamps filled every day.

The wicks of lamps will absorb more oil if they are thoroughly dried before putting them in the burners. To prevent the lamp from smoking, soak the wick in vinegar, and then dry thoroughly. Occasionally washing and boiling the wicks in soap and water, rinsing and drying thoroughly, is also a good plan. Every day the charred portion should be rubbed off with a piece of paper or cloth, and once a week the edge of the wick should be trimmed with a sharp pair of scissors. The wick will burn with an ever flame if it be cut straight across and slightly rounded at the sides. The reservoir of a lamp should be kept well filled, but, when not in use, the wick should be turned down to keep the oil from oozing up between burner and collar, greasing the outside and causing a disagreeable odour. When a lamp is lighted, however, it is best to keep the wick turned up to its full extent to prevent smoking.

To render lamp chimneys less likely to crack, they should be put in cold water which must be brought to the boiling point, after which they should be allowed to cool slowly

without removing from the water. Wash the chimneys in ammonia water, and wipe dry on soft towels that are free from lint; polish with tissue or newspaper. Rub brown spots with salt or whiting.

Kerosene has always an unpleasant odour, therefore it is better to use the best astral oil for dining-room and parlour lamps. Some housekeepers perfume these oils, but this is altogether unnecessary. Never mix two kinds of oil, for the light from such is bad. To make a lamp burn brightly, drop in the reservoir a pinch of salt or camphor.

Rock soil. Some time ago the question was raised in these columns of the cause of the extra fertility of those "pockets" of soil in rocky ground. It was left an open question whether this extra fertility was due to the accumulation of humus alone, or whether this accumulation itself had been caused by the decay of the minerals in the rock. When examining these pockets in a forest soil, the problem is somewhat complicated, but becomes very easy of solution when one observes the beginnings of these pockets in open bare grass or scrub-land. In some cases the pocket of rich would will be found in the hollow of a rock, which again will be surrounded by bare soil of little depth. The first steps at soil formation are easily traced. The pioneer of fertility, lichen, begins the work by boldly attacking the rock itself. As it decays, its fragments drop in the cleft, and on this slender layer of semi-soil, if damp enough, moss finds a a ready lodgment. From now the work of accumulation is fast. A stray seed, blown by the wind or dropped by birds, falls in the cleft, germinates, grins and decays. This process is repeated until the cleft is filled to its brim with rich soft mould. From this tiny patch of strikingly fertile soil, the observer will turn with some surprise to the perhaps bare soil surrounding the rock. Surely the very conditions that produced the deposit of mould in the cleft of the rock, exist in even more marked degree on the surrounding soil. To what is the difference due? A very simple cause will account for this. The rock protects the pocket soil from being washed away by heavy rain. The surrounding soil has no such protection, and a large part of the year's accumulation of vegetable matter is annually swept away by the monsoon rains. Some of our readers may think that we are expending somewhat more energy on the question than the occasion demands. But wait. There is always a useful moral to be drawn from the observation of Nature's ways. Pocket soil is extremely rich. We know how this soil is formed. Cannot we imitate the process on our plantations? It is the surface flow of water that is ruinous to the fertility of the land, as we have all recently had an opportunity of learning. Let subsoil drainage be encouraged to the utmost, and this wasteful surface flow is stopped. In other words, to revert to our illustration, we have changed the conditions of the bare soil surrounding the rock to those that govern the accumulation of rich soil in the pocket.

A soil microbe. After the general introduction our readers have lately had to the great family of nitrefying (nitrate-forming) and de-nitrefying (nitrate-destroying) microbes, it will interest some if they make the particular acquaintance of a curious individual microbe, bearing the big name of *Bacillus megatherium*. This remarkable individual possesses, apparently, double power of both rendering soluble and destro nitrogen, as it exists respectively in the crude forn humus and in the readily available form of nitrates. foreign correspondent of the Dublin *Farmers' Gazette* attention to some experiments carried out by M. Car landowner at Ellenbach, West Prussia, with some micr which he obtained from fertile soil, in order to asce their effect upon the growth of other than legumi crops. He selected one variety, unknown to him at time, cultivated it in a prepared liquid, and poured a s quantity into pots in which oats and white mustard planted, the result being the production of 10 to 35 cent. more yield than was obtained in pots not thus trea Afterwards he steeped his seed-corn in the microbe solu on a large scale, and obtained similarly encouraging res Since 1894 he has treated all his seed-corn in this mar Dr. Stoklara, Director of the Plague Laboratory, too the study of M. Caron's experiments, and ascertained the microbe to which such good results were attrib was the *Bacillus megatherium*, discovered some years by Bary, who was corroborated by Koch. He found the bacillus, when placed among nitrates, was a de-nitri but also that it decomposed organic matter contai nitrogen, converting the latter into a soluble form suit for plant food to the extent of 22 per cent., during a pe in which only 4 per cent. would be so converted wit the presence of the microbe. Dr. Stoklara carried experiments with barley, confirming the conclus arrived at by M. Caron, and he is now making resear with the object of discovering how the microbe effects transformation attributed to its action. A preparatio the microbe culture in the form of a dry powder has made, so that any farmer can try it. In this cou however, the failure of "nitragin" to realise the g results attributed to it in Germany, so far as it has yet tested here, is calculated to discourage trials of sir preparations. Moreover, the statement that the *Bac megatherium* is a de-nitrifier of nitrates, as well as a verter of organic nitrogen into some soluble form of element, suggests caution in the use of the new prepara except on very poor land.

North Travancore. In its issue of the 30th ultimo *Madras Mail* has an instruc leader on what a flourishing planting industry really m to the country. The instance in point is the marvello quick development of the Kanan Devans, North Tra core, through the agency of that colossus of plan companies, Messrs. Finlay, Muir & Co. Spurred by the int activity of the new company, which practically possess whole district, other companies and private planters following the example, and the result is that in a very years the Kanan Devans will be one of the premier plan districts in South India. In the Appendix to the U. I proceedings of last year, the area under tea in North Tra core was put at 2,000 acres. Before the end of this there will be, it is stated, as many as 10,000 acres of increasing to 30,000 in the next few years. This, if cor means that in the next four years an extra 3—4 mi pounds of tea will be thrown on the market, advancin 10—12 million in the next decade. A large acreage is being planted up in coffee. With their reported mi

erling to spend in the district, Finlay, Muir & Co. have turally made things hum, and the officials sit up.

Our contemporary writes :—

'The Madras Government has recently had under consideration an plication from the North Travancore Land planting and Agricul-al Society for the constructiion of a new road 10½ miles long from dinayakkanur to the foot of the hills at Kotagudi, to meet the mpany's aerial ropeway at that place. The case made out by ssrs. Finlay Muir & Co., the agents of the concern, was so con-cing that Government has agreed to pay half the cost of the d,—estimated at Rs.53,000 with bridges and Rs.42,000 without dges—provided the Madura District Board pays half the remain-, and the company concerned the other half. The District Board s already agreed to pay one-fourth of the cost of the road ; and it mains to be seen whether Messrs. Finlay Muir & Co. will be epared to do likewise. Meanwhile Government has deputed an cer to survey the proposed road and to prepare the necessary ns and estimates.

'The importance of the road lies in this, that it is a necessary link the line of communications between the new planting district and e Madras coast ports. The nearest railway station is Ammaya-yakkanur. Between that place and Bodinayyakanur, a distance 47 miles, roads already exist ; and though some lengths are in a ocking bad condition, the District Board has udertaken to put em into proper repair as far as its funds permit. From Bodi-yyakanur there is a bridle path and a ghaut track for pack animals d coolies up to Devikolam and Manaar, but communication is so d and difficult that at times it is found impossible even to carry enough food for the estate coolies, who consequently have had to sent down again in hundreds for want of grain supplies. Messrs. nlay Muir & Co., however, understand what self-help means. ey are now constructing a pucka road about 20 miles long rough very difficult country from Manaar to the top of the otagudi ghaut ; and down this ghaut they are tracing a bridle-path timated to cost some Rs.15,000. Their enterprise in this direction es not stop here, however, for they are going to lay a steam amway along the road from Manaar to the top of the ghaut, while, we have already remarked, they are going to construct a wire peway (driven by water-power or steam) down the ghaut itself. or these communications the agents have already sanctioned an penditure of something like £30,000, which is an eloquent proof their determination to spare no expense in developing their huge operties. But this sum is a mere flea-bite compared to the total pital sum that it is calculated must be spent in developing, plant-g and equipping the properties. There are now about a hundred anters in the district, mostly Ceylon men, a picked lot."

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ina tea in China and America.

Consular reports from China on the subject of the tea trade differ in regard to tea prospects. While me of them point to renewed efforts and hopes on the rt of the Celestials in regard to their tea trade, others e not at all sanguine about the prospect of rehabilitating , says the *H. and C. Mail.* Amongt the latter is the report Mr. Carles, the British Consul at Foochow, who says the xport of tea from Foochow in 1897 was nearly sixteen illion pounds below that of 1896. At present the culti-ation of tea is scarcely remunerative. In the Kien Ning nd Yen Ping prefectures rice is said to be taking its lace. In the Foochow neighbourhood the sweet potato eceives more attention, and in remote tea districts the onsul hears of curing-houses being offered for sale to issionaries, but Oolong, Seu-moo, Souchong, and Pan-ong teas retain and in some cases improve their position. he competition for Oolongs, some Souchongs, and flowery ekoes is still very keen, nothing like them being produced n India. Mr. Carles cannot see how China can regain her osition in the tea trade, the importance of which to the ountry is far greater than might be imagined. The con-mption of tea in China is restricted even in the provinces, which produce it to a small class. Even in Fuhkien, outside the literary class and merchants, the majority of the people use tea dust of different grades, and in provinces where tea is not grown other leaves take its place. In England 6 lbs. per head of the entire population is the average consumption. In the Foochow province it is probably nearly 3 lbs. per head, even among the small fraction of the population who are tea drinkers. Some of the old faults of Foochow teas appear to have been eradicated ; but none of the new methods of preparing teas appears to have proved a complete success, from which we are to infer that the dirty methods affected by the Celestial still prevail. This of itself would be enough to drive Englishmen from the Chinese to the Indian article could they but realise the difference between the two modes. One sensible and direct step towards the resuscitation of Chinese tea is being taken by the local Government—the *likin* charges have been reduced. But even this reform has not been induced by any real desire for the amelioration of the trade. The provincial Government has reduced the charges because it was apprehensive that, if it made no concession, tea would be brought down to the coast under transit passes, the proceeds of which would not go to it, but to the central Government.

The American importation of Chinese tea in the year ending June, 1897, amounted to 56,932,000 lbs., valued at £1,467,000. This represents about half the total import of tea into the United States for that year ; the balance was contributed by Japan (45,000,000 lbs.), the United Kingdom (6,000,000 lbs.), and East India (2,000,000 lbs.). The total consumption of China tea by the United States in 1896 was larger than the British consumption by about 1,700,000 lbs., but fell short of the Russian consumption (inclusive of Asiatic Russia) by over 14,000,000 lbs.

Coffee and Tea Market.

Coffee.—The advance which took place in the terminal market last week has not been maintained, writes the *P. M. Review,* of 7th May, and quotations have gradually given way to the extent of 9*d.* to 1*s.* per cwt. No fresh news is to hand to cause this decline, and quotations in Brazil are unchanged, but there has been little desire to buy for forward delivery. The auctions have again been on the same extensive scale as the last few weeks, but as the demand continues strong nearly everything has been readily sold, and prices have been well maintained, while some kinds are rather dearer. Costa Rica, from 75*s.* to 90*s.*, has sold very freely, and is

COFFEE SHADE TREE.

Sun-dried Erythrina Lithosperma loppings, &c., contain per ton :—

61·50	lbs.	Nitrogen.
57·38	„	Potash.
14·92	„	Lime.
13·68	„	Phosphoric Acid.

Seed cured under Messrs. Sutton and Sons' advice.

Orders should be booked early for the 1898-1899 crop of seed from the parent trees of above analysis at Rs.6 per pound containing about 2,000 seeds. *Germination guaranteed.*

Only thornless variety extant, and is not procurable anywhere save from the

MANAGER, ARIENKOW ESTATE,

Shencottah.

from 2*s.* to 4*s.* above the recent lowest points, while Mysore has sold at fully 1*s.* advance. There has also been a larger business in Guatemala and other Central American descriptions, mostly taken for export, and several re-sales of parcels out of recent auctions are reported at 2*s.* to 2*s.* 6*d.* profit. The Dutch Trading Company have advertised their next sale for Tuesday, when 21,000 bags and 34 cases will be offered against 19,582 bags and 222 cases at the corresponding sale last year.

LONDON COFFEE RETURNS.

—	HOME CONSUMPTION.		EXPORT.		STOCK.	
	1898	1897	1898	1897	1898	1897
For the week ended April 30, 1898.	Tons. 400	Tons. 825	Tons. 763	Tons. 651	Tons. 14,693	Tons. 13,763
For the 17 weeks ended April 30, 1898.	5,175	4,759	8,003	5,550	—	—

Indian Teas.—There was less competition at the public sales, and in some cases the tendency of prices was somewhat easier. This more particularly applies to the poor liquoring sorts, which are comparatively neglected, and a larger portion than usual was withdrawn from the sales. On the other hand, the more useful kinds, especially fine teas, were eagerly competed for, and an advance of ½*d.* to 1*d.* was established, which appears likely to be maintained for some time to come. The medium descriptions met with a fair demand at last week's prices, and, having regard to the smaller quantity coming forward, it is probable that rates will not show much change before the arrival of the new crop. For common sorts the market was somewhat irregular, and there was less difficulty in getting teas for price, but the slight change in value has not brought them to a level with the prices ruling before the rise on Monday week. Of course, this upward movement was due to an exceptional operation, and there appears to be no reason why it should affect prices for any length of time. The following figures for April, compared with those of the same month last year, are, on the whole, satisfactory. Imports were 1,560,000 lbs. and 1,297,000 lbs. respectively, while the deliveries were 1,541,000 lbs. more, the quantities being 11,154,000 lbs. and 9,613,000 lbs., and the excess in the stock is further reduced by 1,278,000 lbs. At the public sales 30,778 packages were catalogued and 3,971 withdrawn, which mainly consisted of undesirable qualities.

LETTERS TO THE EDITOR.

TO MAKE LIME JUICE.

SIR,—I should feel much obliged if you or any of your readers would give me a reliable recipt for making lime juice that will keep, like that manufactured in England and sold out here.

I have tried to find what I wanted in the back numbers of *Planting Opinion*, but can only find "To preserve lime juice" in your issue of October 10th, 1896.

Almost all the lime juice that one buys has a nasty flavour, is this caused by the necessity of putting in Salicylic acid to preserve it?

It seems to me absurd to buy English made lime juice w one has cartloads of limes on the place, if it can be mad the premises.

SANTAVERI, 27*th May* 1898. } ENGINEER.

STUMPING.

SIR,—In view of the approaching planting season and the l number of *E. lithospermas* that will be put out shortly, I sh like to advise all those who have large plants *not* to stump t They are far better put out when the weather is very and app likely to continue so. If the plants get a few days contin wet and dull weather they will usually grow right away,and if the weather clears, and they lose all their leaves, they almost invariably shoot lower down. Letting them die ba in any way preferable to stumping them, as the water gets d inside a stumped *E. l.* and promptly rots the plant, so if stu ing should be restored to then it is an absolute necessity to tect the exposed end from water lodging. There must be n good many *E. l's.* that are big enough now to be thinned lopped, and I would recommend strongly that the loppin buried fresh and green. They have an excellent effect on kee crop on trees benefit the trees generally.

In reference to the interesting accounts of green manurin Lupitz published in *Planting Opinion*, it would be interes to know whether lupins have been grown succesfully in co They have been tried, I know, near Ootacamund. The comp success of the "Lupitz" system is very gratifying as it was parent of "Coffee cultivation without manure."

ARIENKOW, SHENCOTTAH, 27*th May*, 1898. } B. NELSO

TEMPERATURE IN TEA DRIERS.

SIR,—It is generally assumed that the temperature show the thermometer in the drier is that to which the ro subjected. This is only so far true as regards the tempera of the heated air. But the roll comes in contact with galvanized or brass wire mesh, and in all up-draft driers mesh is very considerably hotter than that of the air. So an air temperature of nominally 220°, which is assumed truth to be incapable of burning tea, may and usually does a temperature of 250° to 260° on the surface of the wire ga Thus, while the upper layers of roll on the tray may be still and copper-coloured, the leaf in direct contact with the may be actually burnt. This of course is universally recogn to a certain extent by the frequent turning of the tea on trays. Tea is practically never fixed at such a low tempera as 210° (air heat), 240° to 306° and even over are the rule. such cases the actual tray heat is enormously in excess of registered temperature.

The remedy is of course obvious. The bulb of the thermom should be encased in wire meshing (the wire and the glass b in direct contact) instead of at present isolated from all cont If wire mesh is unavailable, a strip of tin or some other suit metal might be so placed as to touch the bulb.

The natural up-draft drier suffers a great deal from the fur fact of the heated air being unable to pass through the wire n even if empty of tea—with any degree of freedom. This is largely to the small size of the mesh employed, which m with great advantage be, say No. 10, instead of at present No to 16. Of course in cases where no provision is made by hop or other means for preventing the small tea that falls thro the trays from coming in contact with the furnace, such a cha would be impossible. Rather indeed should the size of the n in this instance be decreased to No. 20 or even smaller.

Have any of your readers used the Revolving Automatic Cyli drier, which seems to be made on even more scientific princi

Davidson's Travelling-web Sirocco. In these days of fierce petition we cannot afford to let the quality of our tea depend nuch as it does at present on at best more or less unreliable an labour.

TEA DRIER.

GENERAL ARTICLES.

MORE ABOUT WOOD-ASHES.

E learn from a report by R. Harcourt, B. S. A., Assistant Chemist, C., Guelph, that there is a growing interest in the subject of d-ashes, and their use as a fertiliser. This is largely owing to fact that long cultivated lands are beginnnig to show a lack of lising constituents that are supplied by ashes, and to a desire on art of the cultivator of the soil to increase and improve his crops. e growing plant gathers all its mineral constituents from the in which it lives, and these, now being combustible, are left as when the plant is burned; consequently, the ash must contain all mineral constituents that are esential to growth. These are sh, phosphoric acid, lime, magnesia, iron, and sulphur. These tances form a very small part of a plant, yet without them no t could grow and produce seed; in fact, they are indispensable ife. Of the six essential plant-food substances named, potash phosphoric acid are the most important, not only because they taken up by the plant in large quantities, but also from the that our average soils do not contain them any too abundantly. d-ashes, therefore, are usually valued according to the amount ose two constituents which they contain. Although potash and phoric acid are the most valuable plant-food substances in ashes, shes also contain large quantities of lime, which is of consider- value to the growing plant. Lime is usually present in most len soil in sufficient quantities to supply the wants of plant- vth, yet its application may produce marked effects. By acting nically on certain constituents in the soil, plant-food, especially sh, is brought into an available form. It neutralises the free of the soil and thus helps along the process by which vegetable ter is changed into a form in which the plant may make use of nitrogen. It also tends to improve the mechanical condition of clayey and sandy soils.

he amount of these fertilising constituents contained in an ash vary according to the source from which it is derived. The ash young branches will be richer in potash than that from the r parts of the tree. Different soils will supply varying quantities otash, phosphoric acid, and lime. The following table gives the oosition of a few of the more common ashes analysed by Mr. court. The figures given express the percentages of the various tituents in the dry ash:—

Constituents in Wood-ashes per Cent.

Ashes from	Potash.	Phosphoric Acid.	Lime.	Magnesia.	Iron.	Sulphuric Acid.
le	9·31	2·03	45·24	...	...	1·14
h	7·58	1·39	41·21	6·16	0·3	traces
r	3·30	0·98	49·06	2·49	0·70	0·77
mp Elm ...	35·37	0·45	23·64	6·48	0·19	traces
k-ash	25·30	1·20	49·04	7·42	0·22	0·71
l coal	traces.	0·16	traces.	...	5·32	0·41

he figures show clearly why ash buyers are so anxious to get black or swamp elm-ashes, but at the sametime, it must not be for- en that these ashes are very light and bulky; consequently, there be more potash in one measured bushel of hard maple ash than he same bulk of swamp elm-ash. The hard woods contain a larger quantity of phosphoric acid than the soft woods. Cedar, as would be expected, is poor in both potash and phosphoric acid. The best way to ascertain the true value of ashes is to note the increased yield when they are applied to crops requiring potash, such as potatoes, carrots, grape-vines, and fruit-trees generally.

The caring for and application of ashes must receive special attention. If not properly stored while accumulating, much of the soluble plant-food will be lost by leaching. If not applied to those plants which are in special need of potash, no noticeable results may be obtained. Further, if mixed with farm-yard or stable manure they may do more harm than good, because they tend to liberate, as ammonia, the nitrogen of the manure; If we may judge by the amount used by fruit-growers in the best fruit districts of the United States and Canada they are fully aware of the value of wood-ashes in the orchard.—J. J. WILLIS in the *Gardeners' Chronicle.*

PINEAPPLE FIBRE.

THE United States Department of Agriculture has recently communicated a special report on the subject of pineapple fibre.

In preparing the fibre, the green leaves are steeped in water for some days, as they become unmanageable if allowed to dry. The native method of hand preparation is to lay the leaf upon a board and remove the epidermis and succulent matter with any suitable scraper. A two-handed bamboo plane is used in China, while in the Philippine Islands the blunt end of a potsherd is employed. When the epidermis has been removed, the fibres are exposed, running in a longitudinal direction. Another worker now takes the planed leaves, and loosens with his thumb nail the fibres near the middle of the leave and, gathering them in his hand, detaches them from the outer skin. The fibre is very fine and soft, the filaments being quite flexible and resistant; they yield readily to treatment in an alkaline bath, and are easily subdivided. After separating from the skin, the fibre is steeped in water, washed, and laid out to bleach on wide frames of split bamboo. The processes of washing and exposure to the sun are continued until the fibre is considered to be properly bleached. The isolated fibres are now very fine, and of a tolerably regular diameter, although varying considerably in size, the interior canal being very noticeable in the larger, but almost absent in the smaller, ones. The points are rarely sharp, but generally rounded.

It is claimed for pineapple fibre that constant immersion in water does not in the least injure it, and the natives tan it, with a view of increasing this property, though this is probably done at the expense of some of its strength. The fibres are very flexible, curling and twisting readily. Although naturally fine, the bleaching process, which destroys the adhesion between the bundles of fibres, renders it so much finer that it can be spun like flax. Both the wild and cultivated pineapple yield fibres which, when spun, surpass in strength, firmness and lustre those obtained from flax.

For the manufacture of sewing thread, twist, curtains, etc., its particular qualities render it specially applicable.

In tests of strength, pineapple fibre exhibited superior tenacity. The fibre from Singapore bore a strain of 359 lbs. as against 250 lbs. borne by New Zealand flax. This latter is considered superior to the highest grades of English hemp. In the *Journal of the Agricultural Society of India* (Vol. III., p. 182), there is a record of a rope of pineapple fibre, $3\frac{1}{4}$ inches in circumference, bearing a strain of 5,700 lbs. before breaking.

In the East Indies, where the pineapple was introduced as early as 1600, the fibre is exclusively employed in the manufacture of the delicate fibre known as "pina" as well as for cordage. "Pina" is considered more delicate in texture than any other product manufactured from vegetable fibre. It is woven from untwisted fibres, after they have been reduced to extreme fineness, and have had the ends glued together to form a continuous thread. The plant is specially grown in the Philippines, and it is customary to remove the fruit before maturity, so that the leaves may be more fully developed. Where the industry to be established commercially, it is certain that the tedious process of hand preparation would be superseded by machinery. Several machines have been invented, and Spon describes one by Sanford and Mallory, which cleans, it is stated, from 6,000 to 8,000 leaves per day.

The machine used by Mr. Dodge, the author of the United States' Report, was one by Van Buren, which, while turning out a superb

product, would be quite inedequate for the work from a commercial standpoint, as only two or three leaves can be fed in at a time. The Florida fibre, when simply plunged into cold water for a few moments after coming from the machine, and then dried in the sun, came out almost white and of a fineness and softness unequalled by any other leaf fibre with which the department had dealt.

Quotations as to value are not at present available, as the fibre is not yet a commercial product. There seems no doubt that if the fibre could be produced in quantity, at economical cost, manufacturers would readily find use for it. The question as to a suitable machine, enters largely into the problem. Estimating ten leaves to a pound, there would be over 22,000 leaves to the ton, from which about 50 to 60 lbs. of fibre is obtainable. The Sanford and Mallory machine, capable of clearing 5,000 to 8,000 leaves a day, would only produce 12 to 18 lbs. of fibre; this would make it somewhat high in price. The United States Department of Agriculture intends to carry its experiment with pineapple fibre further, as to give manufacturers opportunity of examining it. It may be added that the value of Indian pineapple fibre is being ascertained, and its characteristics investigated in the Scientific Department of the Imperial Institute.—*B. N. B. Herald.*

CACAO DISEASE INVESTIGATIONS.

INTERIM REPORT BY J. B. CARRUTHERS.

IN this report I propose to confine myself almost entirely to a statement of observed facts as far as they seem at present to lead to a knowledge of the cacao disease; but many facts observed are unrecorded here, and may at a future time be of use when a final and fuller report on the investigation is submitted.

Leaving England at short notice I had no time to make myself acquainted with any literature which might bear directly on these diseases of cacao if any such exists, and, therefore, on arriving here began *ab initio* in my researches into the cause of the deterioration and death of the diseased trees.

The Director of the Royal Botanic Gardens very kindly placed at my disposal the result of his observations on the disease, as well as all the information he had accumulated from planters and other sources, and the two most valuable circulars issued by him showed me the knowledge of the disease possessed by planters up to that time.

At the estate where I began my work I was fortunately able to see diseased trees of all ages, both of Forestero and Red Cacao, and had every facility given me for experimenting on these and on healthy trees.

The fact that trees of all ages, from three or four years upwards, in the best and richest soil and in favourable aspects, were attacked, and that trees apparently in a most healthy condition became victims to this disease, pointed to its being the result of extraneous parasitic organism—either plant or animal—no animal injuries could be found *exclusively* on diseased trees, and therefore the supposition that it might be due to a fungus was a fair one, and I at once proceeded to learn if this was the case by discovering the fungus and endeavouring to induce it in a previously healthy tree.

The conditions favourable for the growth of fungi are moisture and heat; the latter of these is always sufficient in this country, but the former is more occasional. At the time of my arrival the north-east monsoon was providing a time most advantageous to fungi, and I spent the first week in collecting and examining all the fungi I found upon the cacao tree. Here I may say that one of the difficulties in an investigation of this sort is the very large number of fungi to be found in the cacao like all other plants, which are either saprophytic, *i.e.*, living on dead trees or dead portions of a tree, or merely superficial, like the lichens. Both these classes are of little interest in this investigation, as the former, though often occurring with the disease, are an after-effect, appearing when the damage is done; and the latter have, as a rule, no effect whatever on the health of the tree. But the difficulty lies in distinguishing between these and the parasitic fungus which is the real cause.

In order to discover the nature of a fungus and to learn its life history, it is necessary to observe its reproductive organs, just identifying flowering plants the flower must be found. Two me can be followed in such a research, either to discover the fruit fungus in the field (and this is naturally a not very easy m owing to the small size of the reproductive organs of fungi) place some of the mycelium or roots of the fungus under cond most favourable to their reproducing themselves, and keep under close observation.

The difficulty in this latter method, especially in this coun the large quantity of bacteria, torulae and other organisms wh is almost impossible to exclude from the cultures and which de the fungus under observation.

In the case of the cacao disease it was necessary in the first to form some conclusion as to portions of the tree affected. examination of the roots of badly diseased trees showed no sig fungus, and other facts of importance in this connection are trees, which are badly attacked, if cut down to within a few i of the ground will produce from the remaining portion of the suckers which are perfectly healthy and produce sound leave fruit; also that seedlings planted only a few inches from a diseased tree—so that their respective roots must be intermatte touch at many points—grow vigorously without any signs of di These facts lead me to the opinion which, I think, I shall fa prove in this report that *the disease does not affect the roots.*

On coming to the examination of the stem and branch disease trees, patches on the bark can be observed with the eye, in some places claret-coloured drops exhume from the bark where these drops had presumably run over the surface, a char istic rusty skin is produced, the patches were darker in colou damp to the touch, and on cutting into them the tissues are to be discoloured, their natural colour being changed to a ne tint or claret colour. On examining these portions microscop the tissues are found to contain the mycelium (that is the veget portion) of a fungus, and also in large quantities bodies of m less spherical shape, the nature of which I at first thought fungal, though a certain resemblance to the rest spores found a certain groups of these plants—they, however, can be dissolv hydrochloric acid, and therefore I consider them to be clu crystals of oxalate of lime, the nature of which I am investig and hope to elucidate. These bodies, however, have no conne with the fungus and are therefore of less importance.

The leaves are free from fungi and, in cases of a tree having from disease, present all the appearances, on microscopic exa ation, that the leaves of a tree dying from want of moisture w have, thus showing that there is no disease in the leaf, but that death of the stem having cut off the supply of nutrition from root, the leaves have died with the rest of the tree.

On coming to the fruit I noticed a very large number of dea diseased pods of all sizes from an inch long, many of which covered with saprophytic fungi and had died from causes wh hope at some future time to discuss; but others—and these larger ones—were attacked by a disease which, from its occur on trees otherwise absolutely healthy and from its non-occur on cankered trees, came to the conclusion it has no connection the canker, and the experiments which are afterwards desc support this view.

The disease can easily be distinguished from the blackeni pods owing to drought or Helopeltis. It begins either at the or at the stalk of the pod, almost never (about once in a hun in the middle, and creeps along the pod showing a well-de boundary of brown tissue encroaching on the yellow, red or g healthy tissues of the pod. If the pod is cut this will be fou discolour the whole of the tissue not to be merely a super injury as in some other cases of browning or blackening.

The damage that this pod disease has caused in Ceylon I ca yet say, but where I have observed it, it has probably produ loss of 15 to 20 per cent. of the annual crop by attacking pods were approaching maturity, and if the number of young pods l and never picked were included in this estimate the figure wou much higher. This percentage is for the whole year; during wet season—favouring the growth of the fungus—more lik per cent. of the crop was destroyed or rendered of much inf value.

MILLIE & REDMOND, late P. THOMPSON & CO., *Ootacamund, Engineers and Contractors.*

A microscopic examination of the discoloured tissue showed the antities of mycelium, which was larger and of a different character m the mycelium in the stem, and a portion of it was placed under servation in a culture apparatus. After a few days the mycelium gan to produce branches at the end of which egg-shaped bodies e borne. These egg-shaped bodies are seen to contain circular lies, and are no doubt the sporangia or fruits of a fungus which long to a group of plants, the greater number of which are rasites in the tissues of flowering plants and to which the well-own potato disease belongs.

A few days later I was able to confirm these observations by lecting from a pod in the field these same reproductive organs the surface of the pod.

The fruit of this fungus can be easily recognised by the naked eye a white mould occurring chiefly in the furrows of the pod. The pidity with which the fungus completely permeates the com-ratively soft tissue of the pod is shown by the experiments orded later, and an important economic factor in dealing with s evil is that, after the pod has been well attacked by this fungus, further nutrition reaches the seeds and they are found to undergo increase in size. In the case of the younger pods where the ds are still touching the husk, the fungus spreads into and stroys them, but if the pods have approached to that point of eness when the seeds are free from the sides of the pod then the celium of the fungus does not cross the space and the seeds are touched.

Having thus examined the whole tree and come to the conclusion t the stem was the seat of the disease causing the death of the es, I began to watch carefully for any outward sign of a fungus ich was causing the canker, but for some time without success. lso carried on many cultures of diseased bark in the hope that I ght get the fructifications under these artificial conditions. All se cultures, however, fell a prey to the enemies I have mentioned ore without having produced any reproductive organs.

However, on January 24th, I found a white excrescence on the kered portion of a red cacao tree, and on microscopically mining it found it to consist of a mass of mycelium bearing l-shaped thin walled bodies which I placed under hourly mination in a drop culture. In the course of 12 to 15 hours se bodies began to push out tube-like processes in diameter ut a quarter the breadth of the oval bodies.

The processes in some cases grew more than ten times the length he oval body in 18 hours; many of them sent out two tube-like cesses, in some cases, three, and these frequently coalesced so a string of two or more up to six or seven were all growing into tube. These tubes grew and branched frequently, and after 50 rs produced some smaller branches slightly conical in shape, at end of which were a number of spherical bodies, which, after a hours, were seen to consist of bodies of the same shape as the inal spores, and these in their turn pushed out tube-like pro-es in the same manner as previously described.

hese facts leave no doubt that these oval bodies are *spores.* res are the portions of a fungus capable of producing a new vidual, and they may for practical purposes be considered as the ls of a fungus.

During the few weeks following the discovery of these white rophores on the bark of the cacao, I found them on many trees ifferent parts of the estate, and collected and examined a large unt of material. A fortnight later I found a sporophore which tained bodies of a different kind to the previous spores. These bodies were about six times as big as the former spores and cent shaped or in the form of a bent cyclinder and usually 8 tate—*i.e.*, divided into 8 or less compartments. On placing these ies under conditions favourable to their development they pushed tubes from one or more of their compartments, and these tubes w and branched until destroyed by bacteria and microscopic ani-s. In some cases in one sporophore I found both these spores urring; the smaller oval spores forming the mass of the outside ne sporophore and only a few of the larger spores occurring.

s is well known to students of mycology, the fact of these two ls of spores does not necessarily point to there being two fungi, many fungi produce different kinds of reproductive bodies, and observations lead me to expect that in this case there will be a d kind of spore which will be found and will complete the reproductive bodies produced by this fungus. But as I wish this report to deal only with observed facts, I will not enter into any details with regard to this third form of spores.

With regard to the experiments which have been occupying my attention. In the first place I experimented with the pod disease and in the following manner: I took a number of pods in different stages of ripening and inoculated them, inserting into a small space previously cut a piece of diseased tissue taken from another pod. I put the diseased portions in at varying depths and at different parts of the pod—thus, one was near the stalk and almost superficial, and another was much deeper and half way down the pod. In all the pods the disease was speedily induced, and in some of them in five days the whole pod became brown and the tissue full of the mycelium of the fungus. Those pods that were inoculated near the end of the pod took the disease soonest, and as might be expected, where they were inoculated more deeply it began first. After some 8 days the spores of the fungus were produeed in the furrows of one or two pods. From these facts we learn that the time taken for the disease to destroy the pod is comparatively short (as is the case with most fungi inhabiting soft tissue,) I should estimate about ten days from date of attack, and much less than that from the time the disease is first noticed on the pod.

(*To be continued.*)

THE GUATEMALA COFFEE DISEASE.

Frequent reference has been made in our exchanges to a new and very dangerous disease which has attacked the coffee plantations of Guatemala and other parts of Central America and the West Indies. In last year's volume of the *Planters' Monthly* (page 230, May, 1897), will be found a letter referring to this disease from Mr. W. J. Forsyth, who visited these islands some ten years ago, and wrote a full report for the Government regarding coffee planting in Hawaii. His last year's letter did not furnish a full description of the Guatemala disease, but it contained the opinion of the Government Entomologist at Washington that it was what is called *Stilbum flavidum*, a disease that is well known in Costa Rica, Jamaica and Venezuela, for which he could suggest no remedy. Owing to this disease, Mr. Forsyth was compelled to abandon his plantation in Guatemala, and went to Mexico, where no disease to the coffee has yet appeared. His letter referred to above should be read by those engaged in coffee culture.

In the *Advertiser* of a recent date, Mr. Marsden, Commissioner of Agriculture and Forestry, publishes a communication, in which a more detailed account of this dangerous disease is given, from information received from Washington. We insert the whole of his article, and would caution coffee planters to be on their guard and note its first appearance, should it by any means reach these islands. If introduced by the seeds, the seat of the disease will probably be found located in the roots, and every plant found diseased with it should be dug up by the root and burned, root and branch, as the surest remedy, till something better is found.

I would respectfully call the attention of coffee planters to a fungus disease that is seriously affecting the coffee plantations in Guatemala. The following account of this disease has been sent to this bureau from Washington:

"It is a vegetable fungus which is destroying the coffee culture of Guatemala, so that the whole industry in that country is to be given up, unless a remedy is found.

"So far no antidote has been found for this fungus, nor any means by which it can be kept in check. It not only attacks coffee trees, but other plants as well.

"It is first seen as a little spot, about the size of a pea on the leaf. There may be a number of such spots on a single leaf. In the centre of each spot is a little orange red growth, about the size of a dot, which under the microscope looks like a little ball on a stem.

"The action of this fungus on the coffee tree is to cause the leaves to shrivel up and fall off, so that the tree is entirely denuded of its foliage, the growing berries also dry up and fall off.

"This fungus clings to seed coffee and may be transported to other countries receiving such seed."

It would be a wise plan for our coffee planters to refrain from importing seed coffee from any foreign country and any seed coffee

for which orders have previously been sent, should be disinfected as soon as possible after being landed on the wharf. This can best be done by immersing the bags containing the coffee in strong lime water, made by putting a large bucket or unslacked lime into 50 gallons of water. After the lime is slacked it should be well stirred up, and the bags of coffee should be immersed in the mixture for at least ten minutes. This method will effectually destroy any fungus pores that may be adhering to the bags or seed.

There seems to have been a great and general desire on the part of the coffee planters to obtain coffee seed from Guatemala and other countries.

There is no doubt but that the trees grown from Guatemala seed have borne crops much earlier than trees grown from Hawaiian seed; but it is by no means certain that the superiority of the Guatemala trees is maintained as the trees become older. As a general rule, trees that bear at an early age, soon lose their vigor and are short lived. We would like to hear from Mr. J. M. Horner on this subject. He was perhaps the first planter to grow the Guatemala trees.

J. MARSDEN,
Comr. of Agr. & Forestry.

—Planters' Monthly.

ROUND THE BUNGALOW.

NOTES BY A PLANTER'S WIFE.

Mushrooms. WITH the welcome showers of rain during the last week or two have come one of Nature's most delicious edibles, viz., the mushrooms. I fear many people refrain from eating them for fear of getting a poisonous one; the following, however, will enable one to tell the poisonous from the good. The small white topped pink gilled mushroom of the open is of course the most delicate, but the yellow topped and grey gilled, though coarse in flavour, is not to be despised or rejected as of doubtful character. In both, the cap is fleshy, and the gills quite free from the stem round which on the under side an open channel runs. This is a salient feature of an edible mushroom, as all the poisonous sorts have the gills touching the stem. The cap at the outer circumferences, further laps over the gills, and is pendulous, which is not the case with the cap of a poisonous mushroom, which terminates at its juncture with the gills. The stem should, moreover be solid when cut through, and have a collar round midway between the cap and the root. No poisonous or doubtful mushroom will possess this collar. The cap is sometimes silky, sometimes hairy, and sometimes scaly, all points perfectly consistent with wholesomeness, and should be dry, and never viscid, which is an unmistakable indication of noxiousness, the colour may be white, or tawny or dark brown. The colour of the gills may be white or pink, or salmon, or brown or even black, and the spores of the gills purple or brown, or black. The gills of poisonous mushrooms never grow black, however long they may be gathered, and the flesh of the cap never changes colour. The horse mushroom, as its name suggests, is of large size and springs up in clusters, a condition of growth which is said to be peculiar to the harmful varieties, but not always so. This variety affects the neighbourhood of trees or hedges and woods, but cannot for this reason be rejected as doubtful.

A mushroom presenting all the salient features which have above been described may be safely eaten either in a raw state or cooked, but if the consumer will neglect what has been said, and partakes of whatever is offered to him as a mushroom, he may pay the penalty sooner or later, of his want of caution.

It is a generally accepted truism that mushrooms which grow under trees are dangerous, because they are supposed to feed on decayed roots; but the mushrooms of the Nilgiri Sholas are an exception to this rule for some of the best and most delicate sorts are gathered under the shade of the forest.

An easy way of telling if there is a poisonous mushroom among a quantity is to put a small white onion with them in the cooking vessel when cooking them, if there is one poisonous mushroom the onion will turn black, and the whole dish should be rejected as unfit for food. I hope in another letter to give some food recipes for cooking mushrooms, which may be new to some of my readers.

MARKET REPORT.

COFFEE.

Messrs. R. J. Rouse & Co.'s Weekly Coffee Report (May 13, 1898) say: A steady demand still continues at Public sale in spite of very h supplies, and the market on the whole is well maintained.

About 3,500 East India were offered, chiefly composed of small which sold steadily at about previous rates whilst one or two fine parcels realised full values.

The large quantities of Guatemala and Columbian catalogued attra good competition in most cases, and all desirable qualities were disp of at very full prices; common descriptions however were occasio 1/- cheaper.

Futures have been rather firmer this week on reports of damag frost to the Santos crop and quotations show a slight advance since last.

Messrs. Wm. Jas. and Hy. Thompson's Report of the Colonial Market the Week ending May 11th, 1898, says:—Bank rate 4%. Bombay Exch closes at 1s. 4d. Brazil Exchange 5 5/32d. Rupee paper 3½% 62¼. S 26 1/16d. per oz.

This market has again been freely supplied, chiefly with Central A can kinds, which continue to meet with a good demand, especially fo better qualities. The moderate supply of East India, consisting chie small lots, sold steadily. Brazil markets are inactive.

The Dutch Sale of 21,013 bales Java, 34 cases and 7 bales Padang in Rotterdam yesterday, went off with good competition at an irreg advance, good ordinary Java selling at 332 cents, against 33 cents a April sale.

Daily receipts averaged 7,700 bags in Rio, and 9,200 bags in Santos

Futures have been steady but quiet, and close about 3d. per cwt. de viz:—Good average Santos in Havre, September delivery, fcs. 37.5 Hamburg pf. 31, and No. 7 low ordinary Rio in New Work $5.90.

To-day's London official quotations are:—

	May	July	Sept.	Dec., '98.	Mar.	May,
SANTOS ...	29/3	29/6	30/3	30/9	31/3	31/

We quote:—

Ceylon, mid. to good mid.	96/@107/	Costa Rica, mid. to fine...	72/ @
Do. small to low mid.	80/ „ 93/	Do. ord. to low middling.	46/ „
East India, mid. to good mid...	77/ „ 92/	Jamaica, good to fine ord.	33/ „
Do. small to low mid.	60/ „ 75/	Do. greenish to fine colory...	70/ „
Guatemala, mid. to fine...	70/ „ 100/	African ...	26/ „
Do. good ord. to low mid...	54/ „ 68/	Columbian, ordinary ...	35/ „
Salvador, good ord. foxy greenish...	41/ „ 43/	Do. good ord. to low mid...	44/ „
		Do. mid. to fine...	65/ „

Receipts in Brazil to 11th May compare as follows with pre years:—

	1897-98. Bags.	1896-97. Bags.	1895-96 Bags.
RIO	3,950,000	3,208,000	2,100,000
SANTOS	5,857,000	4,811,000	2,818,000
	9,807,000	8,019,000	4,918,000

In Sale—

33 casks & tierces 33 barrels 2 bags Plantation Ceylon ... 50/ @

23 cases / 3,639 bags East India.

470 bags	Mysore chiefly sold	... 54/6@
25 bags	Naidoobatum	... 66/ „
2,068 bags	Coorg	... 49/ „
66 bags	Shevaroy partly sold	... — „
522 bags	Neilgherry	... 44/ „
23 cases 211 bags	Travancore chiefly sold ...	... 49/ „
227 bags	Wynaad partly sold	... 43/ „
50 bags	Nelliampathy	... 70/ „

4,657 bags Costa Rica, part London cleaned, chiefly sold ... 48/ „
7,690 bags Guatemala „ „ „ ... 39/ „
2,976 bags Salvador „ „ „ ... 39/6 „
93 bags Nicaragua, London cleaned ... ... 77/ „
3,575 bags Columbian, part London cleaned, chiefly sold ... 52/ „
231 bags Vera Paz „ „ „ ... 46/ „
75 bags Mexican ... ... 64/ „

24 bags Bolivian bought in.
25 bags Peruvian ... ... 41/6 @ —
22 bags La Guayra bought in.
190 bags Guayaquil bought in.
206 bags Liberian Ceylon bought in.
79 bags Liberian Selangor ... ... 28/6 „ 31/
7 bags Trinidad ... ... 28/6 „ —
6 casks 845 barrels 351 bags Jamaica, part London cleaned, chiefly sold ... ... 32/ „ 68/

Landed last week ...1,262 *tons. Deliveries* ...1,021 *tons. Stock*...14,934 *tons.*
Do. last year ...1,046 „ „ ...1,015 „ „ ...13,794 „

TEA.

Messrs. Gow, Wilson and Stanton's Indian, Ceylon, and Java Tea Report, ed May 13th, 1898, says :—

QUANTITY BROUGHT TO AUCTION IN LONDON FROM 1ST JUNE TO DATE.

	Indian.	Ceylon.	Java.
1897-1898...	1,547,944 packages.	1,129,855 packages.	42,375 packages.
1896-1897...	1,521,710 „	1,073,781 „	43,928 „

365 *pkgs.* INDIAN
278 „ CEYLON
564 „ JAVA
} Total 55,461 packages were offered in public auction this week.

The quantity of British Grown Tea taken in places outside the United ngdom during the first three months of the past four years was as ows :—

1898.	1897.	1896.	1895.
. 11,904,523	13,150,910	9,218,946	5,660,970

All exceptional quantity of Indian Tea appears to have been taken ring the first three month of 1897, very little Tea being usually exported ect from Calcutta to foreign markets so near the close of the season.

Export of Indian and Ceylon Tea in lbs. to places outside the United Kingdom from 1st Jan. to 31st March.

INDIAN.

	1898.	1897.	1896.	1895.
exports from U. K. ...	1,817,771	1,834,897	913,565	930,587
nshipments from U. K. ...	676,791	1,957,789	1,072,500	351,644
ect Exports from Calcutta.	2,063,194	3,297,953	2,399,856	826,530
Total lbs. ...	4,557,756	7,090,639	4,385,921	2,108,761

CEYLON.

	1898	1897	1896	1895.
exports from U. K. ...	2,707,935	2,556,676	1,812,190	1,488,304
nshipments from U. K. ...	475,596	750,766	348,840	207,810
ect Exports from Ceylon...	4,163,236	2,752,829	2,671,995	1,856,095
Total lbs. ...	7,346,767	6,060,271	4,833,025	3,552,209

ndian. Auctions were again on a reduced scale, only 22,365 packages ng brought forward, against 30,778 last week. 306 Last of the Season. oices have now been sold, against 317 to the same period last season. mpetition was good for all grades, and the firm tone noticed during the t week or two was fully maintained.

Week's av. of Tea sold on Garden Account, 1898, 10,996 pkgs., av. 7·09d. 1897, 4,806 pkgs., av. 7d.

	1898. Pkgs.	Price.	1897. Pkgs.	Price.	1st June to date 1897-8. Pkgs.	Price.	1st June to date 1896-7. Pkgs.	Price.
Assam ...	3,201	9·19	542	9½	532,180	9·87	508,274	10·18
Cachar & Sylhet...	6,621	6·17	2,442	6¼	305,893	6·86	294,726	7·31
Chittagong ...	—	—	—	—	5,686	7·15	3,298	7·48
Chota Nagpore ...	—	—	—	—	1,920	5·08	2,046	5·11
Darjeeling ...	—	—	—	—	66,721	11·10	57,915	1/·40
Dooars ...	579	6·48	—	—	144,012	7·44	129,574	7·55
Kangra, &c. ...	—	—	216	7¼	8,481	7·11	6,218	7·06
Neilgherry ...	228	6·52	214	7¾	6,522	6·91	4,408	7·06
Terai ...	—	—	—	—	20,016	7·19	13,325	7·21
Travancore ...	367	6·08	1,392	6¾	33,763	6·36	30,341	6·99

Total sold on Garden Account 1st June to date 1898, 1,124,722 pkgs., av. 8·66d. 1897, 1,050,308 pkgs., av. 9·01d.

Comparative prices of Indian Tea in London.

		1898.	1897.	1896.	1895.
DUST.	(Fair ordinary, dark liquor) ...	3½d	4d	5d	4½d.
FANNINGS.	(Red to brown, strong rough liquor) ...	3¾d	4d	4¾d	5d
BROKEN TEA.	(Brownish to blackish, strong liquor) ...	6d	6¾d	7½d	7¼d
PEK. SOUG.	(Blackish greyish, useful liquor).	6½d	7d	8¼d	8d
PEKOE.	(Greyish to blackish, some tip, useful liquor) ...	7¼d	8½d	9½d	8½d
PEK. SOUG.	(Blackish greyish, inferior liquor).	5d	5¼d	6d	6½d
PEKOE.	(Blackish greyish, some tip, inferior liquor) ...	5½d	6¼d	7d	7d

Ceylon. The week's offerings were again light, the Teas being in consequence very readily absorbed by the trade. Bidding for all descriptions was animated, Teas of really good quality selling at if anything slightly better prices, while for all other grades the recent advance in price was well maintained. The auction was assisted by a good shipping demand.

Average price is 7·72d. against 7½d. same week 1897.

Ceylon Tea sold on Garden Account 1st Jan. to date 1898,416,692 pkgs., av. 7·64d. 1897, 380,558 pkgs., av. 7·93d.

Comparative prices of Ceylon Tea in London.

		1898.	1897.	1896.	1895.
PEKOE SOUG.	(Ordinary leaf; fair liquor) ...	6d	6¼d	7d	7¼d
PEKOE	(Ordinary leaf, little twist; fair liquor) ...	7d	7d	8¼d	8½d
PEKOE SOUG.	(Rather bold leaf; indifferent liquor) ...	5d	5d	5¾d	6½d
PEKOE	(Somewhat bold leaf; indifferent liquor) ...	5½d	5¾d	6½d	7¼d

Java. The Javas sold with good all round competition at rather improved rates. An Invoice from "Djattie Nangor" realised as average of 10¾d., the Broken Orange Pekoe bringing 1/3½d., and the Orange Pekoe 1/0¼d. per lb. 216 packages from "Perbawattee" sold at an average of 10d., and 108 packages from "Goalpara" at 9d., while a few boxes from "Tjiomas" brought 1/5½d. per lb.

Bank Rate 4 per cent. Exchange on London three months sight:—Calcutta 1/4¼. Colombo 1/4¼.

PUBLIC SALE OF SOUTH INDIAN TEA.

(AVERAGE FOR ALL INDIA 7·09*d.*) *May 13th.*

GARDEN.	Total.	Average.	Broken Org. Pek. or Flowery Pekoe.		Pekoe and Unassorted.		Broken Pekoe.		Pekoe Souchong.		Broken and Souchong.		Fannings, Dust, and Various.	
	Quantity	Price.	Quantity	Price.	Quantity	Price.	Quantity	Price.	Quantity	Price.	Quantity	Price.	Quantity	Price.
ilgherry ...	**228 p**	**6·52**												
danaad ...	63½c	8½	...	...	30½c	7¾	33½c	9	...	...	...	...	...	...
w Hope ...	165 p	6	50½c	7½	35	6¾	...	...	60	5½	...	...	20	5
avancore ...	**367 p**	**6·08**												
naccord ...	133 p	5½	...	...	58	5¾	31	6¼	20	5	...	...	24 p	2¾4¾
nemore ...	67 p	6¼	...	...	30	6	25	7	...	...	5	5¼	7 p	3¼4¾
eroot Malay ...	24½c	5¼	...	...	24½c	5¼	...	...	...	...	...	...	...	...
rchiston ...	32 p	5¼	17½c	6	10	5¼	...	...	...	...	2	5¼	3½c	3
TCo Venture ...	111 p	6¾	32	7¾	48	7¼	...	..	23	5¾	...	...	8	4¼

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Cacao, best Trinidad varieties, Rs.1,250 per dozen pods, equal to about 300 seeds.
Erythrina Lithosperma, new crop now ripening, Rs.10 per lb.
Vanilla Cuttings, Rs.10 per dozen.
Coca, small leaved kind for low elevations, Rs.4 per 100; Rs.20 per 1,000; large leaved kind for high elevations, Rs.5 per 100; Rs.30 per 1,000.
Giant Kew Pine Apple, Rs.10 per dozen suckers; 5 dozens for Rs.40.
Pepper, best variety, Rs.10 for 1,000; new crop now ripening, 5,000 for Rs.40.
Para Rubber. Orders being booked for the coming crop, available in August-September, quantity limited.
Sisal Hemp, Rs.12 per dozen suckers; 5 dozens for Rs.50.
Liberian Coffee. Orders being booked for January delivery, price according to quantity.
Cinnamon. Orders booked for May-June delivery, price accordin quantity.
Ramie. Seeds Rs.5 per ounce; root cuttings, Rs.10 per 100, and per 1,000.
Fourcroya Gigantia, (Mauritius Hemp,) Rs.10 per 1,000 seedlings; quantities on special terms.
Bowsting Hemp. Root cuttings, same price as Ramie; large quant on special terms.
Ceara Rubber, fresh seeds all the year round, price accordin quantity.
Large quantities of all the above supplied on special terms; all o must accompany remittance by P. O. order.

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"Englishman," August 1st, 1896.

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"Indian Daily News," August 1st, 1896.

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Calcutta, February 8th, 1896.

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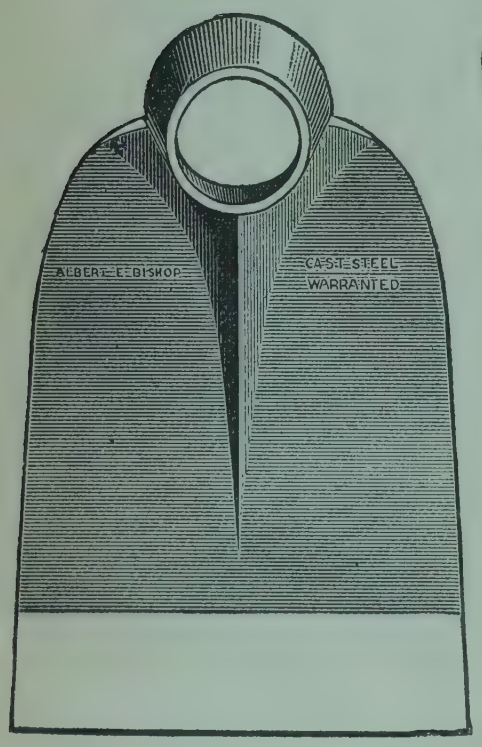

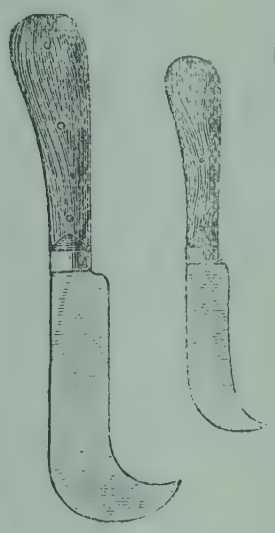

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PLANTING OPINION.

A WEEKLY JOURNAL

WRITTEN BY PLANTERS FOR PLANTERS.

L. III.] COONOOR, SATURDAY, JUNE 11, 1898. [No. 23.

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DVERTISEMENTS.—From the 1st October, 1897, the charge for advertisements will be: 4 as. per line for the first, 3 as. for the second, 2 as. for the third and succeeding insertions. Five-line advertisements Subscribers will be inserted for three issues for one rupee; non-Subers will be charged two rupees.

OMESTIC OCCURRENCE.—The fee for inserting a domestic rrence will be *One Rupee* for each insertion, payable in advance.

.B.—Remittances should be sent to the Manager, "Planting Opinion," 2, Second Line Beach, Madras.

IMPORTANT NOTICE.

The Business Offices of this paper having now been oved to Madras, all remittances should be made pay- to the Manager of *Planting Opinion*, 11 and 12, ond Line Beach, Madras, who will also attend to all ertisements, &c.

Letters to the Editor should be addressed to Coonoor, usual.

SEASON REPORTS.

TO OUR SEASON REPORTERS.

Please post your next reports to reach Madras on Friday, the 17th June, 1898.

Season Reports should be sent to the Printers, Messrs. ADDISON & Co., direct, and not to *Planting Opinion* Office.

Coorg.

POLLIBETTA, *8th June.—Weather.*—The weather has, for the past few days, been monsoonish, but very light, mostly like a "Scotch mist." The precipitation of moisture is very small. *Crops.*—Berries swelling. Estimates on blossom mostly reduced; but crops are still very fair. *Works.*—Removal of borer and supplying going on. *Labour.*—Estates are fairly well supplied with labour for the time of year. *General Health.*—Good.

Nilgiris.

COONOOR, *8th June.—Weather.*—The S.-W., or what looks very much like it, monsoon made its appearance here on the 6th, in the shape of fairly strong S.-W. winds and a driving thin rain. Weather for both coffee and tea is most favourable, and no improvement could be wished for with respect to either.

KULLAKAMBY, *8th June.—Weather.*—The S.-W. monsoon broke here on the 5th with strong wind but very little rain; the weather, however, has been cloudy ever since with heavy mist. *Crops.*—Second blossom out on most estates, and coffee looking very fit. *General Health.*—Fever still very prevalent among both Superintendents and labour. It is hoped the strong winds and general change in the weather will check malaria. *Interesting Items.*—Tigers and panthers have visited several estates, and several kills have occurred.

NOTES.

Creepers and tea.

"If plucking tea," says an old Ceylon planter, "is no longer as remunerative as formerly, yet there can be no doubt that plucking creepers is still as profitable as ever, as the import seems to show no falling off."

The Zanetti vine experiment.

Mr. Zanetti, the gentleman who has been conducting an experiment in growing Australian vines at

Colombo, under certain terms with Government, has now had to give up the trial. It is a great pity, as the vines were doing exceedingly well, and had the experiment been continued for a few years, a valuable industry might have sprung up. We wonder, by the way, that the Bangalore experiments are hanging fire as they do. Surely enough experience should have been gained during the last ten years at least to justify the planting up of experimental vineyards on a fairly large scale.

South Indian Teas. Arrivals were not so heavy with Messrs. Arbuthnot and Company's Monthly London Report of 13th May, 1898, and at the auctions only 2,700 packages were brought forward, which realised 6*d.* per lb. compared with 6¼*d.* per lb. for 5,849 packages in March. Several of the shipments from Travancore were of useful character, among those realising the best averages being Bon Ami, Glenmary, Pambanar, Arnakel, Penshurst, etc. On the whole there was a slight improvement in quality from this district. Nilgiris and the Wynaad were not represented.

Coffee prices in America. It seems only a very short time ago since the great boom in Mexico as *the* coffee-growing district of the world, but now, alas, the prices of American coffee are so low that Central and South America generally do not smell sweet in the nostrils of the investor. Crops, however large they may be, cannot bring in a profit at the present rates in America. It is not surprising to learn that with Brazil coffee at 18*s.* to 22*s.* per cwt., and retail coffee selling at 4*d.* per lb., that the shares of the much-talked of Dumont Company have fallen from £10 to £2½. No, despite leaf-disease, high exchange and everything else, a good South Indian Coffee Plantation takes a prodigious lot of beating.

China Tea in Thibet. We hope that as soon as the present treaty with China and Thibet expires, the Indian Government will no longer stand on any ceremony in forcing open trade routes to Thibet. In view of the dismemberment of China, it would be little short of ridiculous from repairing to push to the utmost our undoubtedly strong claim on the markets at least of Thibet. In the report of the British Consul at Chung-Ring, writes the *H. and C. Mail,* one of the outposts of observation of Thibetan trade, it is stated that certain Mahomedan merchants have the monopoly of supplying tea, and make annual expeditions to Thibet extending as far north as the Koko Nor. Numbers of the tribesmen also come down to the frontier towns and deal direct with the Chinese merchants; but, as a rule, the Mahomedans act as go-betweens. Tea is by far the most important export to Thibet, the figures for Ta-chien-lu and Sung-pan being about 22,000,000 lbs. per annum. In the look-out for new markets for Indian tea, such trade a as this is worth cultivating.

Low Exchange in China. Although the export trade of China, as a whole, says the *H. & C. Mail,* has benefited by low exchange, there was no apparent effect on the tea trade during 1897. In spite of a further falling off in the shipments of tea, the value of the exports for 1897 exceeded that of 1896 by over 32 million taels. The year 1895 held the record with value of Hk. Tls. 143,293,211, but 1897 has beaten easily and stands at Hk. Tls. 163,501,358, which ne doubles the figures for 1887, although at that time tables included the exports from Formosa. The increa not due to an exceptional demand for a particular art and almost every item, except tea, has shared in expansion. We gather from the consular report that total trade of the port of Ningpo for 1897 fell off to extent of £206,376. Practically the whole of the decr occurred under the head of exports. It is accounted by the opening of Hangchow as a treaty port, and consequent complete diversion of Fychow teas and partial diversion of Pingsuey teas. These two items le a decrease of £372,000, and as the net decline is less t this by £166,401, there was a gain to this extent in o directions. It seems beyond doubt that the days of Ni as a shipper of Anhui teas are over, though Mr. Playfa not quite certain on the point, and is of opinion that "t is less finality about the result than might perhaps inferred from the course of the trade during the year is passed." But at least the figures are against him, the shipments of Pingsueys through Ningpo in 1897 reac 8,210,500lb., against 13,118,667lb. in 1896, and of Fych 1,629,000lb., against 12,050,533lb. The diversion will however, make much difference to Great Britain. The goes to America almost exclusively, and whether i shipped from Ningpo or from Hangchow, it will continu go in British bottoms.

Plague rules on plantations. The following rules have b drawn up by the Ceylon Gov ment for the guidance of the l planters in the event of plague breaking out in South In cooly districts :—

1. Isolate all new arrivals from a plague area in separate l and arrange that they work away from the main body of the e coolies until fully ten days have elapsed since they left the infe area.

2. Look out for illness among them by a particularly ca inspection at muster. The symptoms of plague are: Fever of re commencement, violent headache, severe pain in the back and li and lassitude. The glands of the groin, or in the armpit or neck generally swollen and tender; cough and pains in the chest are quently observed. Delirium comes on early. Death occurs in or three days.

3. Should a suspicious case occur, prevent any of the other co from going to see the sick coolies. Vacate all lines in the immed neighbourhood of the place where the sick cooly is housed, and for the District Medical Officer.

All coolies who have been in the company of the sick are to be under observation, and apart from the main body for a period o days. The sick cooly had better be left and treated in his quarters; the District Medical Officer will arrange for the nur from volunteers among the sick man's friends; a subordinate me officer will be placed on the estate. The Superintendent will see food, fuel, water, stimulants and disinfectants and cloths are at h

4. After the disposal of the case, either by recovery or de (*a*) the best and safest thing to do is to burn the quarters in which patient was. If the quarters are of too permanent a nature for the roof should be removed, the floor should be dug up and remo the walls, door and windows scraped and washed down with merc chlorid solution, after which they should be white washed and a flooring put down. (*b*) Method of disinfecting cloths and beddin Things of small value should be burned. The clothes and bed of patient and attendants should be boiled for an hour in a cal and spread out in the sun for two days. (*c*) Burial of pl victims :—Graves at least six feet deep, well away from water-su or habitations, and the body to be surrounded by quicklime.

rade reports of the 20th ultimo show :—

o, Cinchona and rdamoms.

Cacao.—A better tone prevailed at yesterday's auctions, about 2,707 bags, out of a total of 4,927 bags red, being sold at a general recovery of 1*s.* per cwt. quote—Trinidad, middling to fine red 73*s.* to 76*s.*, grey mixed red 72*s.* 6*d.* to 73*s.*; Guayaquil, Caraquez 75*s.* 7*s.*, Arriba 78*s.* to 85*s.*; Ceylon, middling to fine 70*s.* to Stock 131,982 bags against 135,928 bags last year.

inchona.—The periodical Dutch auctions, the fourth of series, were held in Amsterdam on the 5th. The good ply of 7,086 packages Java bark was catalogued, as pared with 7,923 packages at the preceding sales, and 7 packages in February last.

good demand prevailed, and 5,526 packages sold at dvance of about 25 per cent., the average unit obtained ng 5·25 cents against 4·25 cents at the previous sale; being equal to the last London auctions, or barely per unit.

he quinine contents offered was about 29,000 kilos inst 36,500 kilos last sale, and about 23,000 kilos sold.

he exports of Java bark for the month of April were ,000 Amsterdam lbs., against 560,000 Amsterdam lbs. last r, and for the four months 3,212,000 Amsterdam lbs., inst 1,984,000 Amsterdam lbs. in 1897.

ardamoms.—Of Ceylon a total of 288 cases was offered, with a slow demand only about 120 cases sold at a line of 2*d.* to 3*d.*; chiefly Mysore character, good to fine ght bold pale 3*s.* 6*d.* to 3*s.* 10*d.*, fair 3*s.* 4*d.* to 3*s.* 5*d.*, dium and small 3*s.* 1*d.* to 3*s.* 3*d.*, medium 2*s.* 11*d.* to 3*s.*, all 2*s.* 7*d.* to 2*s.* 11*d.*, brown and split pickings 2*s.* 4*d.*, ds 2*s.* 9*d.* to 3*s.*, ordinary small brown Malabar 2*s.* 3*d.* to 7*d.*; Wild (of five cases offered one sold) at 3*s.* 6*d.*

Of East Indian 35 cases met a good demand and were stly sold, chiefly Mangalore; fine bold bleached 4*s.*, good d 3*s.* 9*d.* to 3*s.* 10*s.*, medium and small 3*s.* 4*d.* to 3*s.* 5*d.*, all 3*s.*, brown pickings 2*s.* 10*d.*; a few lots ordinary small wn Malabar sort 2*s.* 6*d.* to 2*s.* 8*d.*, Seeds 2*s.* 10*d.* to 3*s.* per lb.

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erplanting of ubber.

The length of time one has to wait before a rubber tree yields any return for the care and cultivation pended on it, which by the way is not very much, makes st planters shy of touching it. Pervaded to an unolesome extent with the idea, sound enough in the main, "one thing at a time," South Indian Planters look with eat distaste on the interplanting of rubber or any other rinsically valuable tree in their tea or coffee. This is a eat pity. The current idea is that if a tree is good for ade, or shelter, timber or fuel, plant it up by all means ongst the existing cultivation. But if a claim is advanced t any income could be derived from the produce of this ade or shelter tree, it is at once looked upon with much spicion. Crops cannot be gathered without manure, and crop-giving trees are planted amongst tea or coffee, they ll injuriously encroach upon the supplies given to the ples. "If it is, you know, why let it be so, and if it be so be it." The very obvious reply to this argument is: nure the crop-giving shade or shelter trees as well as the ple. Planters are, as a very general rule, not able to ord to devote entirely new land to the separate cultivan of new products. Interplanting, therefore, is the only chance they have of testing their value. In Ceylon, it is firmly held that Para, for instance, can be planted in tea at the rate of fifty trees per acre without doing the least harm. Some planters, indeed, declare that 100 trees per acre would be safely planted in certain instances. In some eight or ten years the value of the produce of these 50 or 100 rubber trees would probably largely exceed the returns from the staple itself in its best days. Ceara even, which has now such a wretched reputation, can yield in favourable situations as much as one pound of good rubber per cooly. Para grows in Ceylon up to 500 feet, or even 1,030 feet it is said, but in India—*vide* the Burliar Garden on the Nilgiris—it thrives at about 3,000 feet. By the way, reckoning the acreage by the number of seeds sold, there are about 1,000 acres planted up in para in Ceylon, most of which is under six years' old.

A new coffee-book.

We have received for review quite a curiosity in the shape of a little book on coffee cultivation by one Timma Maistry. It is called "The Coffee Planter's A. B. C., and is most respectfully dedicated to those good sportsmen and gentlemen, the planters of Southern India, by their honour's humble and obedient servant, Timma Maistry." The book is arranged alphabetically, and is capitally got up and printed by the M. E. Publishing House, Madras. Had Tamil and Canarese translations been added, the little work would have been of much use on estates for conductors, writers and maistries. While the book contains nothing new of any importance, "the maistry" shows throughout his little work that he is fully abreast of the latest ideas in planting. His remark on leaf-disease, for instance, is well to the point: "Leaf disease appears, like all fungoid growth, in a greater or less degree, whenever hot sun comes on ground laden with moisture, and disappears when atmospheric air has taken the place of water in the soil. *If, by subsoil drainage, all water could be removed that the soil cannot assimilate, then perhaps leaf-disease would disappear.*', As befits his character of a good all-round man, Timma's hints on the treatment of cooly ailments are simple and practical. When there are a large number of coolies sick, keep them in good spirits, and he sensibly remarks that in such cases a present to make "Sami" often does more good than much medicine. On the whole an excellent little work, full of sound sense and practical advice most useful to young planters learning their A. B. C. at coffee.

Cup and pipe.

Curiously, the subject treated in our article headed "Cup and Pipe,"

COFFEE SHADE TREE.

Sun-dried Erythrina Lithosperma loppings, &c., contain per ton :—

61·50	lbs.	Nitrogen.
57·38	„	Potash.
14·92	„	Lime.
13·68	„	Phosphoric Acid.

Seed cured under Messrs. Sutton and Sons' advice.

Orders should be booked early for the 1898-1899 crop of seed from the parent trees of above analysis at Rs.6 per pound containing about 2,000 seeds. *Germination guaranteed.*

Only thornless variety extant, and is not procurable anywhere save from the

MANAGER, ARIENKOW ESTATE,
Shencottah.

published last week, writes the *Grocer* of the 14th ult., supplied the principal theme of discussion on the Budget resolutions in the House of Commons on Monday night, when various orators expressed their opinions freely, if without much practical knowledge, concerning the relative merits of tea and tobacco. Truly, as we pointed out, these articles seem to be now acquiring a distinctive importance: statesmen regard them as important factors in the economic and commercial world, and people who do not consume either one or the other or both are thought by some of their fellow-creatures to be deserving of a phrenological examination. On Monday evening, when the House got into Committee of Ways and Means, an opportunity for discussing the budget naturally arose, and Mr. Robertson opened the debate by expressing a decided opinion that it is tea, not tobacco, the Chancellor of the Exchequer should have chosen when he conceded a reduction of taxation. While agreeing generally with the idea thus enunciated, Sir William Harcourt remarked that there are more tea drinkers than tobacco smokers in this country, but he produced no statistics by way of adding force to his rhetoric. Yet the subject is surely worth more than a superficial consideration. It is perhaps not easy to get at the actual facts. All classes of people drink tea, but all classes do not smoke. True, many women are beginning to do so, and boys start earlier than they did in former years, and old men never leave off, as the saying is, while there is a puff in them. All this is good for trade, and we need not make invidious comparisons, or express dogmatic opinions concerning the relative importance of two primary consumable articles. There is reason to believe that the commerce in both will show a satisfactory development in the near future. While, practically speaking, tobacco has no competitor, tea has several, and cocoa, for instance, has of late been well boomed. But tea drinkers are staunch in their devotion; they are not prone to run after what is unfamiliar, if not new, to them. And, after all, there is plenty of room for coffee and cocoa and tea and tobacco, especially if we are to have it better and cheaper. The British workingman may, in this regard, be expected with confidence to do his duty, and contribute nobly—by his smoking, if not by his tea-drinking, enthusiasm—to the Imperial exchequer. Many grocers now supply him with a really wholesome shag at 4*d*. per oz. and under, also with tea of unrivalled cheapness, considering its excellence of quality. This is the good work that we hope to see continued with unabated enterprise and spirit. Slight reductions of duty, either of tea or tobacco, are all very well; but Englishmen are pretty sure to keep their cup filled and their pipe alight even if the Chancellor of the Exchequer does not come to their aid.

London Market.

Coffee.—During April, writes the *Produce Market Reveiw* of May 14th, there was an increase in the European stocks of nearly 6,000 tons, but a decrease in the world's visible supply of 25,000 tons. Probably much of the latter was caused by the enormous deliveries in the United States owing to the scare about an extra duty being imposed, and which amounted to nearly 105,000 tons, or almost double the deliveries in the same month last year. The total stock is now given at 340,010 tons against 256,290 tons last y Although these figures appear enormous, the markets tinue very strong, and at the Dutch sale on Tuesday p were, in nearly all cases, much above the valuations. In market, although the auctions continue excessive, s 24,000 bags being catalogued this week, prices have i cases been well maintained, or are dearer. Only a 2,000 bags of Costa Rica have been offered, and these at an advance of 1*s*. to 2*s*. for fine coloury, while med and common were steady. Larger supplies of Guate have come to hand, and full prices have been paid, espec for all bold parcels. The bulk of the East India has of common quality, and consequently difficult of sale, all the fine lots were sold at extreme rates.

LONDON COFFEE RETURNS.

—	HOME CONSUMPTION.		EXPORT.		STOCK.	
	1898	1897	1898	1897	1898	1
For the week ended May 7, 1898.	Tons. 399	Tons. 422	Tons. 622	Tons. 593	Tons. 14,934	T 13,
For the 18 weeks ended May 7, 1898.	5,574	5,181	8,625	6,143	—	

Indian Teas.—A smaller quantity has been bro forward, but, owing to the somewhat large proportio undesirable sorts, coupled with a less active demand, p for some descriptions were irregular and lower. irregularity in value especially applies to parcels givi thin infusion, irrespective of appearance, and the bu the withdrawals from the public sales consisted of t kinds. On the other hand, teas, even of common qua giving a better result in cup, have met with attention, sold at prices showing but little change from last w while the good medium kinds have been inquired for brought firm rates. The next higher grades with qu and fair strength have further advanced in value, a strong tone for the next few months is confidently expe owing to the comparatively limited supply. For the and finest descriptions the market continues very strong it is rarely at this period that such a scarcity of r stand out teas is available. Extreme prices have in co quence been paid for the few parcels offered, which

PLANTING BOOKS.

Map of Ceylon Tea Estates Rs.9; colored Rs.10; Mounted in case Rs
Map of Ceylon Plantations, Plain Rs.8. Inga Va, Rs.2-8. Areca
As.12. Cocoanut Planter's Manual, Rs.4-10. Ceylon Manual of Che
Analyses, Rs.3-10. Tobacco Cultivation, Rs.3-10. India Rubber (n
the Press). Coffee Planter's Manual (now in the Press). All about S
Rs.3-10. Coffee Tree and its Enemies, Rs.1-8. All about Grub, R
Brazil as a Coffee Country, Rs.1-8. Cardamoms, Re.1. Ceylon
Soils and Manures, Rs.1-9. All about Aloe and Ramie Fibre, Re.1.
Buildings, Rs.4-4. Coffee and Chicory, Rs.1-13. Coffee Cultivati
Ceylon, As.5. Tea Cultivation and Manufacture, As.5. Tea Cultivati
Ceylon, As.6. Tea at high elevations in Ceylon, As.3. Manuring o
Estates, As.8. To Economise Labour Supply, As.12. Planting, Prunin
Preparation of Tea, As.12. Salt for Agriculture, As.8. Cocoa, Cocain
its Salt, Rs.2. On the Importance of Lining, As.4.

Apply "OBSERVER OFFICE,"
Colombo.

MILLIE & REDMOND, late P. THOMPSON & CO., *Ootacamund, Engineers and Contractors.*

ily bought in view of a further diminishing supply in ıear future. At the public sales 22,365 packages were ogued against 30,700 in the preceding week, and 2,694 withdrawn, and the quantity advertised for Monday s a further diminution.

LETTERS TO THE EDITOR.

COOLIES' PAY.

R,—Whilst *Planting Opinion* reports coast coolies "flocking Coorg at As. 4 pay," I hear of estates paying As. 6. Is this Coorg)? At any rate, how about the combination supposed nd that should) exist amongst planters?

th May, 1898. S. C. P.

YOUNG PLANTS DYING.

R,—May not this be the cause of young plants dying after arly showers, viz., before the fall of the early showers the nd is dry, parched, and as hot as a kiln, not a drop of rain ng fallen for perhaps three or four months. Rain coming n on earth in this state would, I should think, cause a great ınt of evaporation; hence heat. In fact, your plant gets a of steam bath, or rather the roots do. Perhaps, this boiling eders *doesn't* quite agree with young plants?

n a great many estates, where the surface soil is not deeper 6 to 10 inches, you see pits dug to the depth of 18 inches, bringing a great part of the subsoil to the surface. Is it not stake to spread your subsoil—probably a stiff clay—over your ace soil? A mistake in more than one sense! If 18-inch pits required, by all means have them, but directly they have been put the soil back as you found it. Subsoil where subsoil ld be, and the surface soil on top. Not as many men do, scrape all the good soil into the pits and leave the inferior on the surface; by so doing, I have no doubt the plants do well for the first few years. But does it pay in the long ? I am, of course, referring to coffee.

K. D. H.

GENERAL ARTICLES.

THE U.P.A.S.I. SECTION.

[UNDER THE CONTROL OF THE SECRETARY, U.P.A.S.I.]

HE following is Mr. Howard O. Newport's third rative report of his quest of Lady-birds, dated Gatton, eensland, 14th May, 1898:—

THE SECRETARY,
UNITED PLANTERS' ASSOCIATION OF SOUTHERN INDIA,
Madras.

EAR SIR,—I regret I was not able to write last mail as I intended o. I was away from headquarters and returned too late to catch English mail.

ince I last wrote I have had some trouble with the ice chest. und an ordinary ice chest would not bring the temperature low ugh to suspend animation in the Lady-birds. This had to be e, of course.

Ir. Tryon had had no experience of this part of the business, and ny perplexity I called upon the Engineer in charge of the Rail- Cold Storage Works. He, I found quite by chance, had had e practical experience in this very line, having sent insects from S. W. to California. He had, he said, put the insects into a perature below freezing point. He gave me a plan of a brine st that would bring and keep the temperature low enough to p the insects dormant. This I took to Mr. Tryon and with his roval had constructed.

n fact, the Agricultural Department had it done for me in their workshop. The construction of this case delayed my collecting work for some ten days or more, but it was absolutely necessary. Since it has been completed I have been collecting steadily and have been successful in getting a good number of insects. I am making arrangements now to return to India by the O. S. N. Co.'s steamer leaving Sydney on the 28th instant. To catch this I leave Brisbane by boat on the 25th instant, and should arrive at Colombo on the 17th or 18th June.

Before leaving I will, of course, submit my insects to Mr. Tryon's inspection. Should he advise me to wait for another fortnight and collect more of any one kind of insect, I will do so and leave by the boat of the 11th June, but I do not anticipate his suggesting this.

I beg to submit my accounts for the month of April.

I have to the end of April drawn £60 from the letter of credit I hold for £160, and expect to have to draw some £30 or £35 more before my arrival in India.

	£	s.	d.
Cash in hand March.	3	19	1
Drawn from Bank ...	35	0	0
Total ...	38	19	1

EXPENDITURE.

	£	s.	d.
Ice and brine chest ...	6	5	0
Thermometer ..	0	16	6
Ice	0	15	0
Moss, felt, boxes, & tools ...	2	6	6
House-rent	13	10	0
Sundries	0	6	0
Travelling expense (trams to and from city and Ag. Office, cabs, busses & buggies in out-station £1-12-6; Hotel bills at Ipswich, Gatton, Grovely, etc., £1-10-6).	3	3	0
Drawn on Private A/c ...	10	10	0
Balance cash in hand ...	1	7	1
Total Expenditure ...	38	19	1

As I have stated above, I expect to leave for India on the 25th instant by the Orient steamer *Oroya*. Should I have to stay for the later boat, I will write again.

(Signed) HOWARD O. NEWPORT.

ARE NITROGENOUS MANURES NEEDED?

OUR readers must be now fairly familiar with the subject of soil-bacteria, and the highly important part they play in agriculture, in converting inert nitrogen into nitrates. A Mr. Baur, whose letters to the Ceylon papers we have frequently noticed, now makes the final step by declaring that, in his opinion, no nitrogenous manures are required at all. This is, of course, with special reference to tea, and considering the more nitrogenous nature of a tea crop, it must—theoretically be it observed!—hold good with coffee. To prevent any misconception, we may mention here that Mr. Baur's extreme theories are by no means above suspicion, and that we hold them only to be partially true, at all events under the present conditions of plantation-working. According to one of the most noted French agricultural scientists of the day, the average loss of nitrates as shown by drainage waters is as much as 88 lbs. of nitrogen per acre per annum. This is the average of many soils, uncultivated and unmanured. These 88 lbs. were lost mostly in autumn, 37 lbs., the quantities for winter, spring and summer being 11, 16 and 24 lbs. respectively. Some of the soils were well-loosened and exposed to the air, with the result that the drainage waters proved the formation of 195 lbs. of nitrogen per acre the next year, falling to 71 and 65 lbs. the two succeeding years. This demonstrates the enormous value of loosening and stirring the soil.

Granted that all this nitrogen is converted into nitrates in the soil, Mr. Baur is a great deal too hasty in jumping at the conclusion that there is no loss of these nitrates in

land under such cultivation as tea. When even land under such crops as grass, wheat, and clover show a loss of nitrates under the gentle European rains, it is clear that our coffee and tea lands, especially if steep, must suffer an even greater loss. On the other hand, it may well be that in moist, warm districts, nitrates are formed in greater quantity than in Europe, and so be better able to afford their greater loss.

On the assumption that more nitrates are provided in the soil than the largest crops of tea can take up, Mr. Baur argues that small yields must be due to the lack of other constituents, in other words to a want of soluble phosphates and potash. If these minerals were supplied, he holds that the increased crops would at once demonstrate the truth of his contentions. *Pari passu*, the undoubted effect of soluble nitrogen in the form of nitrates or poonac prove just as conclusively that the soil-formed nitrates are not retained in sufficient abundance for the purpose of producing the largest crops. There is no escape from this quandary, except by going a little deeper into the elements of agriculture. Make the soil more retentive, better able to hold up the nitrates, and your store alike of soluble nitrogen and of soluble minerals will increase in direct proportion.

Mr. Baur has done good service in attracting attention to the subject of minimising the planters' manure bill, but he does not go far enough. There is no doubt that almost every soil contains plant-food, in its inert state, in enormous quantities. The great task is to render these stores soluble. Deep and thorough cultivation, and a really intelligent system of drainage, would effect an enormous saving in manure. More than that, manure applied to thoroughly worked up soil is practically all utilised. At present for every anna's worth of poonac or other manure taken up by the plant, fifteen annas are wasted.

Some day another Mr. Nelson will arise, and demonstrate as successfully as that gentleman a system of cultivation without manure even more perfect and valuable than the one based on the now widely-known *Erythrina lithosperma*.

SOURCES OF COMMERCIAL INDIA-RUBBER.

BY DR. MORRIS, C.M.G.

SINCE the days when Le Condamine first described the rubber tree of Brazil and Don José, King of Portugal, in 1755 sent several pairs of his royal boots to Para in order that they might be covered with the waterproof 'gum-elastic,' the use of India-rubber has enormously increased. Besides the demand in almost every department of arts and manufactures, the rapid development of cycling and of the use of rubber tyres for carriage wheels has added to the increased consumption of this interesting article. The quantity of raw caoutchouc imported into the United Kingdom in 1830 was only 23 tons. Even in the year of the accession of our Queen it was only about 200 tons. Last year it had increased to 20,000 tons—exactly a hundred fold.

The present value of the imports is about five millions sterling. The total trade is probably not less than ten millions sterling. More than one-third of the imports is now received from British possessions. In 1888 only about one-fifth was so received. It is estimated that the world's consumption of rubber is 60,000 tons, of the value of 14 millions sterling. This stupendous quantity of raw material is laboriously extracted from the milky juice of trees and shrubs belonging to three natural orders, viz. the Spurges (*Euphorbiaceæ*) the Nettles (*Urtienceæ*) and the Dogbanes (*Apocynaceæ*). These plants are distributed over nearly every part of the tropical zone—none are found in the temperate zones—the most important being found in the vast basin of the Amazon, an area almost as large as that of the Continent of Europe; others are found on the East and West C of Africa, in Assam and the Malay Archipelago.

Hitherto the preparation of India-rubber has depended upo crude hereditary art of a semi-savage people, the rubber-hunters explore the depths of tropical forests and obtain the rubber m the sacrifice of millions of trees, which, owing to the reckles with which they have been treated, are yearly decreasing.

The result is that many localities where rubber was once al antly obtained have almost ceased to produce it. New sourc supply have, it is true, been found in West Africa, especial Lagos, the Congo State and Portuguese South-West Africa. here also the work of destruction is rapidly going on. The colle have to go farther and farther into the interior, and the co transit is thereby greatly increased. An account was given b lecturer of an important discovery whereby the rubber coul extracted from the milk in a perfectly pure state. This is a m nical contrivance on the principle of a cream separator. This likely to prove of great value in the preparation of Central Ame and some West African rubbers where the milk flows in an app able quantity and is capable of being brought in by the colle It would be indispensable on regular plantations of rubber-t By such means the process of preparing the rubber could be under scientific control, and all injurious substances such as pro and all dirt and chips excluded. The value of the rubber so pared has been shown to be increased fully 25 per cent.

The rubber-trees of Brazil were then exhaustively described gether with the distribution of the various species yielding the rubber of commerce. The exports from Para in 1897, inclu rubber received from Bolivia, Peru and Venezuela amounted to 2 tons. Of this amount, 51 per cent. was shipped to the U States and 38 per cent. to the United Kingdom, leaving only a 11 per cent. or 2,500 tons for all other countries.

The price of Para rubber, which regulates the prices of all sorts, has been steadily increasing since 1894, when it was 2*s.* per pound; in 1895 it rose to 3*s.* 2*d*; in 1896 to 3*s.* 4*d*; in 1897 t 6½*d*; while the average price for the first three months of 1898 3*s.* 9½*d*. At the last sales on the 15th instant, it was 3*s.* 11*d* pound. It was, however, pointed out that these prices were b what they were in 1882 and 1883, when fine Para fetched 4*s.* 4*d* pound.—*Observer.*

CEYLON ASSOCIATION CURRENCY MEMORIAL

THE following is a copy of the memorial against the proposa the Government of India sent by the Ceylon Association in Lo to the Rt. Hon. Jos. Chamberlain:—

CEYLON ASSOCIATION IN LONDON,
61 and 62, GRACE-CHURCH STREET, E.
May, 189

Sir,—In view of the serious depression in trade in Ceylon ca at the present time by the forced contraction of the currency, of the losses in which the Ceylon producers are involved by th titious value given to the rupee, the Ceylon Association in Lo desires to place its views before you in such a manner as to en that the interests of the Colony may be fully considered be decision is come to by the Government on the policy to be pur with regard to the Indian Currency.

2. Ceylon has not, like India, several leading staple prod How dependent the Colony has been on her one staple product, only in the matter of her general prosperity, but also of her pu revenue, may be shown in a few words. In 1877, when coffee was flourishing, the revenue amounted to R17,020,190; with the failu coffee the revenue fell in 1882 to R11,161,570. From 1882 to present time the great tea industry has exhibited a steady and r development, and the revenue has in like manner increased yea year till in 1897 it amounted to about R23,200,000.

3. As it may be said, without exaggeration, that tea saved Colony, so also the future of the industry, from whatever ca would most assuredly bring on the Government the gravest finan trouble, on tea estate proprietors the loss of some £15,000,000 ster and on a large number of the native population wide-spread ruin

4. These are the considerations, admitted in Ceylon as valid by officials and unofficials, that cause the Association to view the utmost alarm the policy of the Indian Government with regar the Currency.

5. From the date of the introduction of tea, till the effects of cessation of coinage in India stayed the steady downward mover

PEIRCE, LESLIE & CO.

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B.—We are prepared to indent home for any and all kinds of estate requirements not kept in stock or enumerated in this list.

		Rs.	A.	P.
ATE TOOLS—				
Round Eye Felling Axes (steel), 4 lbs. weight	per doz. ...	20	4	0
Do. do. do. 2½ „ „ „	...			
Pick Axes, 6½ lbs. (well steeled)	„ ...	16	8	0
Bill Hooks, (Barcutties) 12″ blade, bright steel	„ ...	18	0	0
Do. Kentish, with back, steel, 2¼ lbs. wt.	„ ...			
Bushel Measures (Galvanized), Imperial Stnd. ...each	...	15	0	0
Buckets (Galvanized), various sizes ... from per doz.	...	16	8	0
Watering Cans, (Galvanized) "Nonsuch," 2 gals. each	...	4	0	0
Do. do. do. 2½ „	...	4	8	0
Steel Digging Forks. *Steel strapped all along handle.*				
4 & 3 pronged per doz. Rs. 39-0-0 &		33	0	0
Grass Knives, socket handle, steel ...	per doz. ...	12	12	0
Hammers, 6, 7, & 8 lbs.	per lb. ...	0	6	0
Handles, Pickaxe, 3 ft. long (English Ash) ...	each ...	0	12	0
Do. 30″ long 3¾″ circ. (do) ...	„ ...	0	6	0
Do. 16″ „ 3″ „ (do) ...	„ ...	0	4	0
Do. Digging Fork	„ ...	0	14	0
Lining Ropes, abt. 250 feet	„ ...	8	12	0
Mamooties, Steel 10″x 8″ or 9″x 7″ abt. 4 lbs. wt.	per doz. ...	12	12	0
Do. Iron 10½ x 8½ or 9½ x 8 abt. 4 lbs. wt.	„ ...	7	8	0
Quintanies, Steel 15″ × 6,″ 5½ lbs. weight ...	„ ...	18	0	0
Do. 9½″ x 5,″ 3¼ „ „ ...	„ ...			
Manure Pans, (Galvd.) 7″ deep x 18″ top x 10″ bottom	„ ...	23	4	0
Pitting Bars (Alavangoes), well-steeled points, 3″ spade end, 45″ long, 9 lbs. wt.	„ ...	16	8	0
Pruning Knives, English make, best steel, 4″ blade	„ ...	9	0	0
Do. Saws, do. do. 14″	„ ...	18	0	0
Seamless Bags (for coffee transport to coast) 42″ x 20″	„ ...	9	12	0
Shovels, round nose, T handle	„ ...	12	12	0
Tea Transplanting Spades, steel, sharp edge ...	each ...			
Tea Sieves, brass No. 6, 8, 9, 10, 12 mesh	„ ...	6	0	0
Do. do. bottoms do.	„ ...	3	8	0
REQUISITES—FOR PACKING.				
ESTS—MADE TO ORDER. *Deld. at Mettapollium, Palghat, Calicut.*				
Full Chests 24 x 19 x 19 (outside) ½ in. planks	each ...	1	1	0
Half do 16 x 16 x 16 („)	do „ ...	0	13	3
Quarter do 14 x 12 x 10 („) ⅜	do „ ...	0	9	3
Any other dimensions at proportionate prices.				
AD—BEST INCORRODIBLE. *Any other sizes obtained to order.*				
127 sheets 37″ x 22″	per case of 2 cwt.	32	0	0
r 218 „ 25″ x 19″	„ ...	32	0	0
{ 40 „ 84″ x 22″ for sides	} „ ...	30	0	0
{ 80 „ 21″ x 16″ „ tops and bottoms				
{ 72 „ 65″ x 19″ „ sides	} „ ...	30	0	0
{ 144 „ 14″ x 14″ „ tops and bottoms				
der (Sticks)	per case of 1 cwt. Rs. 50, or per lb. ...	0	8	0
dering Fluid	per bottle ...	2	0	0
p Steel ½″ (abt. 3,000 feet to the cwt.) ...	per cwt. ...	15	0	0

		Rs.	A.	P.
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Copper Punched Cylinder cover 4′ x 2′ ...	each ...	25	0	0
Do. Disc cover	„ ...	9	0	0
Do. do. for Liberian ...	„ ...	12	8	0
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Estate, Double, (coffee drying, etc.) Nos. 1 and 2, Rs. 2-8 &		2	4	0
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Corrugated Iron sheets 24 G. 2 ft. wide (English) Lengths 5, 6, 7, 8, 9, 10 ft. / Approx. weight 14, 16, 19, 22, 24, 27 lbs.	per cwt....	10	0	0
Iron Ridging, 6 ft. x 6 inch lap. ...	per length ...	1	8	0
Bolts and Nuts, ¼″ x ¾″	per gross ...	1	14	0
Rivets (*abt. 64 to the lb.*)	per lb. ...	0	4	6
Washers, Iron (*abt. 70 to the lb.*)	„ ...	0	4	6
Do. Lead (*abt. 50 to the lb.*)	„ ...	0	6	0
Screws 2½ in. (*abt. 28 to the lb.*)	„ ...	0	7	0
Lead headed nails 2½ in. (*abt. 20 to the lb.*)	„ ...	0	6	0
NAILS—				
Cut Rose Nails 1 in. (*abt. 500 to the lb.*) ...	per lb. ...	0	3	0
Do. 2½ in. („ 90 „) ...	„ ...	0	2	3

Wire Nails, French.

	1″	1½″	2″	2½″	3″	4″
℔ 1 cwt. keg Rs.	13/12	11/8	11/	10/8	10/	9/8
℔ pound annas	2¾	2½	2¼	2¼	2	1¾
Nails ℔ lb. (*abt.*)	400	200	160	100	80	35

Triangular Barbed Wire Nails.

	1″	1½″	2″	2½″	3″	4″
℔ 1 cwt. keg Rs.	14/	12/	11/	10/8	10/	9/8
℔ pound annas	2¾	2½	2¼	2¼	2	1¾
Nails ℔ lb. (*abt.*)	500	290	160	110	75	40

ASPHALTE	per ton ...	69	0	0
PORTLAND CEMENT—John Bazely White and Bros.				
"Whites" Best ℔ barrel of abt. 375 lbs. net ...		11	12	0
Sole Agents for S. Canara, Coorg, Malabar, Coimbatore, Travancore.				
COAL TAR, Best ℔ barrel of abt. 4 cwts. gross ...		20	0	0
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change, the tea industry grew and prospered greatly. Good ts were made, though the gold price of the produce was con-ly falling, and large areas of land were brought under cultiva-

The establishment of the 1*s.* 4*d.* rupee has at a stroke seriously iled profits and raised such alarm for the future as to check any ier extensions.

The cost of the present crop of Ceylon tea, estimated at 00,000 lbs., will be about R36,000,000, so that every additional y in the exchange value of the rupee adds £150,000 to the gold of the crop.

China, meanwhile, retains her silver currency; and as the *l.* rupee is nearly 7*d.* above its intrinsic silver value, it is clear that ual gold prices, Ceylon will, in competition with China, stand at advantage, on this year's crop alone, of a million pounds sterling.

The Ceylon and Indian tea industries, when competing on fair even terms on a silver currency, were able without difficulty to e China tea out of the home market.

Extended cultivation both in India and Ceylon then made it ssary to find new markets abroad for the increasing weight of uce; and large sums of money have been and are being spent in avouring to introduce British-grown teas into some of these kets, notably North America and Russia. Some measures of ess had been achieved, but the markets being already held by a and Japan, it is manifest that under the circumstances stated e the difficulties of making further progress have been enorm-y increased.

. The competition of China will be all the more formidable in future inasmuch as powerful efforts are now being made by cap-sts to establish in various parts of China Tea Factories equip-with the latest machinery; and tea thus prepared, produced by ur paid in cheap silver, will be able to undersell the more costly of India and Ceylon in every neutral market.

. Advocates of the closing of the Indian Mints and of the blishment of the fixed 1*s.* 4*d.* rupee have held the opinion that idence would thereby be restored and that capital would flow y into India. In the matter of tea this currency policy is having, we venture to think, will continue to have, probably in an easing degree, the very reverse effect.

. The present hopeless position of the sugar-growing Colonies is rning of the disasters that await producing industries subject to nty-fed competition. This Association foresees the possibility of ke fate overtaking British-grown tea should the value of the ee be maintained so much above its value in the standard of the ntries competing on a silver basis.

. The position of the Colony would be, in that base, it is feared, ne respect even worse than it was on the failure of coffee, inas-h as there will be no other product available to take the place ea.

. Special stress has been laid on the effects of the Currency posals of the Indian Government on the tea industry as being most important of the industries of Ceylon; but the consequent ease in the gold cost of production will affect equally every luctive industry in the Island. All exported produce that seeks arket open to competition with the produce of silver-using coun-s will further suffer from the fall in price that must result.

. Two diagrams are sent herewith; the one showing the rates Exchange and the selling price of Ceylon tea in sterling and ees respectively, the other the annual exports of tea from Ceylon n 1882 to 1897. I have the honour to be, Sir, Your obedient vant (to be signed on behalf of the Association).

To the Right Honourable J. Chamberlain, M.P., Her Majesty's Secretary of State for the Colonies, Downing Street, S.W.

THE FISCAL HISTORY OF TEA.

(From the Customs Tariffs Blue-Book.)

HE first mention of tea in the statutes is in the Acts 12, Charles c. 23 and 24 (1660). By the latter Act, certain burdens upon the ject arising from courts of wards and liveries, and tenures by ghts' service and otherwise, were abolished, and in order to re-e the revennes which had been received therefrom a number xcise duties were granted to the king, among which was the owing:—

or every gallon of chocolate, sherbet, and tea made and sold, to aid by the maker thereof 8*d.* and a like amount was granted as ty of excise, by the other Act quoted.

But experience showed that this collection of duty upon the liquor of tea and chocolate (as well as upon that of coffee which had also been enacted by the before-mentioned Acts) was so burdensome and expensive to the Crown, as well as unequal in its bearing upon the dealers, that the provision in question was repealed and a net duty of 5*s.* per lb. imposed in 1698 by 1 William and Mary, sess. 2, c. 6.

Tea is not even mentioned by name in the Book of Rates issued with the great Customs Act of Tonnage and Poundage of 1660, but if imported at that date*—and there can be little doubt from the enactment noticed in the first paragraph that it then formed an article of importation—it was liable to the payment of the general *ad valorem* duty of 5 per cent. which was due on all goods not specifically rated. This customs duty was in addition to the excise duty on the liquor of tea already mentioned. Tea, however, must very soon have become an article of sufficient commercial importance to command the particular attention of Parliament, for another Act, passed in 1695, made it liable to 1*s.* per lb. duty if lawfully imported, that is, in ships of the East India Company and from the place of its growth, and 2*s.* 6*d.* per lb. if otherwise imported. By 3 and 4 Anne, c. 4, these duties were doubled in 1704; and again in 1712, 10 Anne, c. 26, 2*s.* per lb. was added in the case of tea imported from the East India Company territories, and 5*s.* per lb. if imported from elsewhere.

In 1721 it was found necessary to prohibit the importation of tea from the continent of Europe, owing to the fact that a trade had sprung up which militated against the interest of the East India Company, who alone had the right to import tea into these islands. In 1724 the excise duties on tea were consolidated into a single inland rate of 4*s.* per lb., but in 1745 this high rate was altered to 1*s.* per lb. and 25 per cent. *ad valorem*, calculated on the prices realised at the East India Company's sales; this duty being over and above the import duties. The reason for this charge was that the revenue collected at the sales in London and paid over direct to the Crown by the East India Company was less liable to be evaded than such as was collected from a number of traders by the excise authorities. The East India Company in return for their privilege were held responsible for keeping the London market supplied with a sufficient quantity of tea, in default of which the Treasury were empowered to grant licences to other persons or bodies corporate to import tea from Europe. In 1773 the reserve amount which the Company should keep in warehouse was fixed at 10 million lbs.

In 1777 it was found that the high duties, added to the prime cost of tea, had made the article so expensive, that great incentives existed to adulterate it with dried leaves of sloe, ash, and elder, and with liquorice and the re-dried leaves of used tea, and a penalty was enacted of 5*l.* for every pound of such adulterants sold or found in any person's possession. But the smuggling and evasion of duty went on without much abatement until 1784, when it was determined by Parliament to collect the whole of the duty on tea by the agency of the East India Company. The existing duties were therefore repealed, and in lieu thereof a single modified rate of 12½ per cent. on the value of the teas sold by the Company was enacted. They were to hold not less than four sales every year, and to put up at least 5 million lbs. at the first sale and 2¼ million lbs. at the second, and in order to prevent abuse by the Company of the monopoly thus accorded to them, it was further laid down that the upset prices at which the teas should be put up should not exceed for the first four sales—

For Bohea	...	1*s.* 7*d.*	per lb.
For Congou	...	2*s.* 5*d.*	„
For Souchong and Singlo	...	3*s.* 3*d.*	„
For Hyson	...	4*s.* 11*d.*	„

The teas to be sold without reserve. The Company were further to keep at least one year's supply in stock, and afterwards to put the tea up to auction at a commencing price not exceeding its prime cost and charges for freight and insurance. This Act was generally known as the Commutation Act.

By the 18th Geo. III., c. 26, the grant of drawback of duty upon teas exported was made to cease altogether, owing to the constant frauds which were practised. This enactment pressed heavily upon Ireland, because all tea was imported in London, and by the 7th of Geo. III., c. 56, and some other laws, a portion of the import duty

* The following entries occur in Papys' Diary:—"Sept. 28, 1660. I did send for a cup of tea (a China drink) of which I never had drink before and went away (the King and the Princesse coming up the river this afternoon as we were at our pay)." "June 28, 1667. Home, and there find my wife making of tea; a drink which Mr. Pelling, the Potticary, tells her is good for her cold and defluxions."

was returned upon teas sent to Ireland—generally three-fifths of the full duty. Subsequently, in 1777, Parliament granted, upon exportation of tea to that country, a drawback of the full customs duty which had been paid on importation. (17 Geo. III., c. 27.)

In 1795 an addition of 7½ per cent. was made to the excise *ad valorem* duty to be calculated on the prices realised at the sales, and in the next year a further 10 per cent. was added in the case of teas of a higher value.

Further additions continued to be made to the duty, and at the close of the eighteenth century the average price of Congou tea at the sales was rather over 3*s.* a pound, exclusive of the duty, which amounted to the not excessive rate, on an average, 1*s.* 2½*d.*, or, taking price and duty together, 4*s.* 2½*d.* per lb. This, of course, was independent of the retailer's profit, which doubtless added considerably to the price before the article reached the consumer.

During the war with France, the duty rose considerably, and in 1811 the average rate was 3*s.* 4*d.* per lb., the average wholesale price in bond being also just about the same, making the total wholesale price inclusive of the duty as high as 6*s.* 1*d.* a pound.

(*To be continued.*)

GOVERNMENT GARDENS IN THE N.-W. P.

THE Government of the North-Western Provinces and Oudh maintains four public gardens and one fruit orchard, viz., the Botanical Gardens at Saharanpur, the Horticultural Gardens at Lucknow, the Taj Gardens at Agra, the Khushru Garden and Alfred Park at Allahabad, and the Muktasar Orchard in Kumaon. Reports on these are submitted by the Superintendents in charge, but there are a few other gardens, such as the Cantonment Garden at Agra, the Memorial Garden at Cawnpore, and perhaps a few others, about which, however, we seldom hear; at any rate, we do not suppose any reports are submitted on the working of these. The two first named are entirely under the control of the local Department of Land Records and Agriculture; the third is under control of the Commissioner of Kumaon, while those at Agra and Allahabad are under the local authorities, though the Director of Agriculture is associated in their management, and is the channel for the submission of their annual reports; but his connection with them is almost entirely of a consulative nature. The first three gardens carry on work of agricultural interest, while the last two are maintained for ornamental purposes. We are indebted for the foregoing information to the report of the Director of Agriculture on the operations of his department for the year ending 30th September, 1897.

The Taj Gardens could scarcely be made to serve a utilitarian purpose, but it seems to us that the three other gardens under the control of the Superintendent of the Taj Gardens, viz., the Rambagh, the Itmad-ud-Dowlah and Secundra, could be converted into experimental gardens; the question of funds, however, would doubtless have to be considered. The Khushru Bagh at Allahabad has so far served no useful purpose whatever, but were a competent Superintendent appointed, who took some interest in his work, there is no reason why experimental cultivation could not be carried on; the Alfred Park is purely ornamental.

The Saharanpur Garden seems to have done extremely well last year, notwithstanding the deficiency of rainfall, which told adversely on the orchard; though vegetables did well, and the issue of fruit trees, grafts, seeds of vegetables and flowering annuals and cuttings of ornamental shrubs was larger than in the previous year. In its scientific section the garden did good work for the Reporter on Economic Products, while experiments were conducted with food and fodder products and other articles of economic value. What these were is not stated in the report, but possibly when we receive the report on the garden we shall know. Sisal hemp, the Director tells us, "was successfully naturalised; considerable quantities of rhea were grown, and varieties of sugarcane, formerly strange to Saharanpur, were introduced to the neighbouring zemindar much appreciated." The year's working resulted in a pro Rs 2,321. The most interesting feature of the work at garden was the experiment in the preservation of fruits vegetables by evaporation. Reference was made to this i issue of 14th October, 1897. Mr. Gollan, the Superinten has been experimenting with Ryder's Evaporator. We ar told that a considerable quantity of fruit and vegetables been dried by this machine, but Mr. Gollan considers h yet to reduce the cost of drying before the products cou successfully put on the market. "Samples of the pr have," says the Director, "since the year closed been rec at this office, and it is proposed to send them to a few le mercantile firms to report." Experiments on a smaller have been made by the Assistant Director at Cawnpore, " a cheap German Evaporator, which was recommended b Voelcker in his paper on the fruit-drying industry of Gerr published in the Journal of the Royal Agricultural Socie England in 1896." This cheap machine, "made in Germ does not seem to have been a success, as the process of d with it is described as "tedious," and the wooden trays "re constant watching," as "the heat has to be regulated great care, in order to prevent the fruits from being overhea The Director adds naively: "Further trials will be made, ever, as there is still much to be learned about the art."

Like Saharanpur, the Lucknow Gardens suffered fr deficient rainfall. The Arabian date palm again gave un factory results, which should interest Dr. Bonavia. We the detailed report before dealing with the work of this ga The facts given by the Director in regard to the working Muktasar Orchard in Kumaon are altogether too meag base any criticism upon. We await the detailed report o orchard also.—*Indian Government.*

WASTE OF FRUIT SEEDS.

IF we come to consider the enormous quantity of seed t daily consigned to the dust-bins of our larger cities and sta and the vast area of waste lands that must yet remain un vated for many years to come, says a writer in an exchan seems a pity that the more robust trees should not be rais our reserved and less accessible forests and left to Natu develop. Mangoes are more than usually abundant this and the same may be said of lichees and some other fruits goes without saying that the outer slopes of our moun abutting on the plains, that have been denuded of their ti by the pernicious system of *jhuming*, would be all the bett being brought under new growth of the more satisfying f while at the same time, as the timber attained maturity, barren unprofitable stretches of country would become cisterns as they were before the ruthless hillmen converted into bare, dry, rocky deserts. Of course, we could not, at expect these places to become the dense forests they wer most of the soil has been washed from them, so that the i steps for rehabilitation would have to be confined to such cre as have been unexposed to the rush of water and in wh certain proportion of soil remains. We cannot induce *jhumer*, who only lives for the present, to adopt a more civ method of agriculture, but the forest authorities might insist upon his putting in a certain amount of seed the last s of his occupation of the land; mango, jack, and such timber as jarool, julna, simul and others would not in the least int with his crops, and though after the place had been aband there might be some danger from grass fires, an arrange could be come to rendering it incumbent on the former occu to cut down the grass and brushwood about the beginni December, as the heavy dews and Christmas rains would re it to rotten vegetable matter, less liable to take fire than i

row unchecked until March, when these fires usually take
e. Our trunk roads, bunds of tanks, railway embankments
other similiar sites would take no harm if laid down with
tations of papaya and other light fruit trees, the roots of
h do not ramify into, or split the soil, and which, if thrown
ss the rails by storms, would not impede the traffic. It is
to witness the waste of the seeds of our fruits, especially
n we consider the health-giving properties all possess, and
gh disapproving of appealing to Government for assistance
l and every occasion where the benefit of the general commu-
is concerned, I think in this instance the aid of district officers
ld be invoked and jail labour employed in carrying out the
e suggestion. Of course, the selection of seeds must not be
scriminate, only those of the very best quality being chosen,
rom the general ignorance of the Indian peasant on all
ils of cultivation, aboriculture especially, the average fruit
ght into our markets is of decidedly inferior quality.
da or Bombay mangoes, China or Malay lichees are best
ed to Upper Assam, South Sylhet and certain parts of
nar, while the seeds of papaya and the better class of
tains would thrive in the moister climate of North Sylhet
along the foot of the Bhutan mountains. In fact, the
aya as well as all the citrons of the Khasia Terai are not to
qualled in any part of the world, and it is from this district
I recommend seeds of these latter should be procured.
it must be remembered that citrons will not attain per-
ion without the aid of lime; it is also as well to mention
the famous orange groves, usually, though erroneously,
wn as the Sylhet ones, are subjected to an annual down-
of some 380 inches, besides being occasionally entirely
nerged.—W.

CACAO DISEASE INVESTIGATION.

INTERIM REPORT BY J. B. CARRUTHERS.

(*Concluded from page* 267.)

HE experiments with regard to the canker in the stem were more
orate. I selected a number of trees 5—7 years old in different
s of the estate, and chiefly in new clearings of both Forastero
Red varieties, all of which to all appearances were entirely free
n disease, and whose tissues showed no sign of mycelium when
mined under microscope. These I proceeded to treat by inocula-
. The method of inoculation adopted was to make a slanting
so as to expose all the different tissues from the cortex to the old
d, and to insert by means of a paint brush the spores, or in the
of those inoculated with diseased bark to insert a thin slice, and
e cuts were then bound up firmly.

used some 30 trees and treated them in the following way :—

t.—13 trees inoculated with the smaller spores, which I have
viously described.

nd.—6 with the secondary septate spores.

rd.—10 with diseased bark containing mycelium.

n each of these treatments both Forastero and Red Cacao were
d, and in one or two cases suckers were also treated.

ince these experiments were being carried on in an extremely dry
on, and the atmosphere was very different from the rainy times,
en the disease undoubtedly spreads, I wished to imitate as far
possible the conditions which are to be found in the wet seasons,
so place these inoculated parts under the most favourable condi-
s for the germination of the fungi. I therefore kept them damp
means of moist paddy straw, which was tied on to the tree, and
vetted daily, after I had examined the case; in cases where the
had access and was likely to dry this up rapidly, I placed shades
r the part treated.

hese were carefully watched for any sign of the disease, and, as
be supposed, those inoculated with the diseased bark contain-
the mycelium were the first to show any sign, and first
all a Red Cacao produced the sporophores of the fungus
r nine days, and all the other Red Cacao followed suit
acquired the disease with the exception of one tree in which the
straw treatment had been intentionally omitted. In the case of
three Forastero trees treated with diseased bark, one has, up to
the time of writing, taken the disease and the other two are in a suspicious condition.

In the eleven cases treated with the smaller spores, six were Forastero and seven Red Cacao. Three of the Red have developed symptoms after more than fifteen days, and one of the Forastero.

The cases treated with secondary spores (those described as crescent shaped and septate) have none of them at present shown any sign of the disease.

The external signs of the canker are being carefully observed and recorded, and permanent microscopic preparations made of its various stages, as well as many other observations and drawings which at present have no significance, but which with the progress of the investigation may be useful in throwing light on many questions of interest.

Usually the first external sign of disease is a moist spot on the tree with often a drop of claret or brown-coloured liquid exuding from it. When this runs over the surface of the bark, it gives it a rusted appearance—later the sporophores burst through the bark at different places, being at first white in colour and changing gradually to a red or brown—the size of these sporophores varies from that of a pin's head to almost the size of a pea, and the shape is as a rule round or oval. In the cases on older bark they are forced through the cracks already existing in the bark, and thus they appear more or less in vertical lines. The tissue is at first of a neutral tint, and later becomes brown and finally dark claret coloured. In most of the cases observed the fungus seems to spread more rapidly round the tree than vertically, but the rapidity of growth varies in the different trees, and no opinion can be as yet formed as to this most important matter.

The three trees not kept moist by means of wet paddy straw have none of them acquired the disease, and this during the recent dry weather is as expected. In regard to the trees which have developed spmptoms of the canker, those inoculated with tissue containing the mycelium would not usually be sooner affected than those treated with spores—just as transplanting is quicker than growing from seed. No doubt much valuable knowledge as to means of prevention or cure will be gained from these trees as well as that for which the experiments were instituted, the observation of the different stages of growth of the fungus.

With regard to the future work, the main questions still to be solved by observation and experiment are the following :—The conditions of heat or dryness which will prove fatal to spores. The time—if any special time exists—for the formation of each kind of spore. The means by which the spores gain entrance into the tissues of the stem, whether they first germinate outside the bark or get in by a wound—and in this connection it must be remembered that the spores being of such a minute character need no appreciable wound. To give some idea of their size—in the case of the small spores first mentioned, more than 50 million would be required to cover with one layer a square half inch, which is about the same superficial area as a ten cent piece.

Another extremely important question on which I am making many observations and experiments is the question of the effect of heat and dry atmosphere on the cankered spots of the tree. I have observed in many cases that the characteristic moist claret-coloured tissue dries up, and on cutting has all the appearance of dead wood. In these cases the mycelium is not to be found in a microscopic examination, and if present at all must be in a dried up and probably entirely lifeless condition. The conditions which bring this about and whether the tree subsequently forms new and healthy tissue at the spot are problems which must be discovered. The question of the effect of cutting out portions of the canker, how far in bad cases it is practicable, and what measures should be taken, if any, for protection of the wound is of great practical importance, and will be experimented on at different estates where the conditions vary.

So far as these investigations have gone—and they are of course in an incomplete state—though certain facts have been established, yet it is too soon to talk of possible preventives or cures—and a cure in these cases of parasitic fungi in permanent parts of a plant is always a more difficult problem to deal with than a prevention.

Until a complete knowledge of the enemy you are dealing with has been gained, all experiments in these directions must be empiric and to a certain extent unsatisfactory, yet it may be well to state the facts already learnt and what precautions they teach us to take. In the case of the canker the malady is due to a specific disease caused by a fungus which inhabits the growing tissues of the stem,

and in the pods such a disease caused by a different fungus also exists.

As I have previously observed, the conditions necessary for the growth of fungi are moisture and heat—the heat in Ceylon is always sufficient, but the moisture can be to a certain extent controlled. During the rainy seasons the atmosphere continues moist where the sun is not shining, but when the sun is up, unless the place is too densely shaded, the atmosphere must speedily become too dry for the germination of spores. It is thus most important that a minimum of shade should be employed—the amount of shade necessary for the profitable cultivation of cacao—to prevent attacks of Helopeltis, to protect from wind, and other reasons are questions which experience in planting shows, and which I will not presume to advise, but from my point of view, as far as the canker is concerned, this shade should be reduced as far as possible.

It also follows from the observation already made that a great risk is run by allowing any bark on which the sporophores or spore-bearing portions are present to remain on the trees, and all this should be destroyed by burning, which is the only absolutely effectual means of ensuring destruction of fungi. This also applies in the case of the pod disease, which should be stamped out if care is taken to destroy the husk of every pod as soon as it is observed to be attacked.

Any report until the life history of the fungus has been entirely observed, and the rate of growth of its different stages determined is, to a certain extent, unsatisfactory, and therefore it is of great importance that those interested in the cacao disease should remember that this is only a portion of the result of an investigation carried on as far as is possible on scientific principles, and that hasty conclusions on data more or less incomplete are not likely to materially help in the eventual elucidation of the questions of prevention and cure.

J. B. CARRUTHERS.

March, 1898.

ADDITIONAL NOTE AS TO EXPERIMENTS.

On many cacao estates the superintendents reading this report may be inclined to themselves help on this investigation, and, therefore, a few remarks as to experimental work which they could do may be of use.

The most important point in carrying out such experiments is exactitude in recording what has been done, and after observation what the effects are at regular and frequent intervals. No doubt much useful information will be gained if the data are carefully recorded, and it is hardly necessary to specify the exact knowledge to be got by each experiment. I will therefore briefly state one or two examples of how to treat such cases.

1. To cut out carefully the whole of a cankered part, taking care that no discoloured tissue remains behind and leave the wound so made to the drying influence of the air, and also, if possible, to take a stem which gets direct sunlight on it. (Neither of these experiments of course, could be expected to succeed in thick shade.)
2. To cut as in No. 1 and treat the wound with tar.
3. To cut as No. 1 and treat with Bordeaux mixture as recommended by Mr. Willis in his report, viz.:—

Copper Sulphate (Blue stone)	6 lb.
Quick Lime	4 ,,
Water	45 gals.

4. To scrape the cankered parts without entirely cutting them out and apply the mixture.
5. To cut out strips about one inch apart and about one inch in breadth in the cankered parts and treat as before.

In all the cases of using copper sulphate as a fungicide, its liability to being washed off is a difficulty, and experiments with regard to modifying this are important. They may, however, be left to the ingenuity of the individual experimenter if it is always remembered that the basis of the application must be the blue stone. In France molasses have been used, and this mixture resists the action of the rain remarkably well, using only one-tenth of the weight of molasses to that of copper sulphate. Dextrine linseed oil and other substances have been used, but what is of course best is to use a cheap locally produced substance which can be readily obtained.

If these or any of these suggested experiments are carried out, I shall be obliged if those superintending them will communicate with me, so that I may take advantage of the information gained and also, if possible, inspect the trees myself.

J. B. C.

MARKET REPORT.

COFFEE.

Messrs. R. J. Rouse & Co.'s Weekly Coffee Report (May 20, 1898) sa

Public Sales continue on a large scale, and the heavy supplies br forward met a good demand at about previous values.

Nearly 6,300 bags East India were catalogued and the greater par sisting of small lots, sold steadily; whilst five Home Trade marks we keenly competed for at very full prices.

Large quantities of Central American kinds were offered and mostly disposed of at about unchanged rates for all descriptions.

The Terme Market has been quiet and quotations show little change since our last.

Messrs. Wm. Jas. and Hy. Thompson's Report of the Colonial Mark the Week ending May 18th, 1898, says:—Bank rate 4%. Bombay Exc closes at 1s. 4 1/16d. Brazil Exchange 5 3/16d. Rupee paper 3½% 62. 26 7/16d. per oz.

A steady demand continues to prevail at auctions prices, at the being fully up to last week's for all kinds, the market continue supplied. Brazil markets are unchanged.

Daily receipts averaged 8,700 bags in Rio and 6,800 bags in Santo

Futures have been quiet, and close 6d to 9d per cwt. lower, viz.:— average Santos in Havre, September delivery, fcs. 36, in Hamburg and No. 7 low ordinary Rio in New York $5.70.

To-day's London official quotations are:—

	May	July	Sept.	Dec., '98.	Mar.	May
SANTOS ...	28/9	29/	29/9	30/3	30/6	30

We quote:—

Ceylon, mid to good mid.	96/	@107/	
Do. small to low mid.	80/	,, 93/	
East India, mid. to good mid...	77/	,, 92/	
Do. small to low mid.	60/	,, 75/	
Guatemala, mid. to fine...	70/	,, 100/	
Do. good ord. to low mid...	54/	,, 68/	
Salvador, good ord. foxy greenish...	41/	,, 43/	
Costa Rica, mid. to fine...	72/		
Do. ord. to low middling.	46/		
Jamaica, good to fine ord.	33/		
Do. greenish to fine colory...	70/		
African ...	26/		
Columbian, ordinary ...	35/		
Do. good ord. to low mid...	44/		
Do. mid. to fine...	65/		

Receipts in Brazil to 18th May compare as follows with pre years:—

	1897-98. Bags.	1896-97. Bags.	1895-96 Bags.
RIO	4,013,000	3,250,000	2,138,00
SANTOS	5,905,000	4,850,000	2,837,00
	9,918,000	8,100,000	4,975,00

In Sale—

24 casks & tierces	17 barrels Plantation Ceylon	... 67/	@
4,448 bags East India.	907 bags Mysore, chiefly sold	... 53/	,,
	43 bags Naidoobatum	... 68/	,,
	71 bags Nelliampathy chiefly sold.	48/6	,,
	1,376 bags Coorg do	... 60/	,,
	1,190 bags Neilgherry do	... 49/	,,
	60 bags Pulneys do	... 77/	,,
	223 bags Wynaad do	... 51/	,,
	471 bags Shevaroy, partly sold	... 50/	,,
	107 bags Travancore chiefly sold...	48/6	,,
2,162 bags	Costa Rica, part London cleaned, nearly all sold	... 53/	,,
2,051 bags	Guatemala ,, ,, ,,	... 41/	,,
3,639 bags	Salvador ,, ,, chiefly sold	... 41/	,,
2,384 bags	Nicaragua	... 38/	,,
856 bags	Vera Paz, part London cleaned, chiefly sold	... 36/	,,
134 bags	Central American, part London cleaned, small part sold	... 36/6	,,
927 bags	Mexican ,, ,, chiefly sold	... 45/6	,,
1,054 bags	Venezuelan ,, ,, ,,	... 65/	,,
3,644 bags	Columbian ,, ,, ,,	... 30/6	,,
25 bags	Peruvian ,, ,, ...	... 59/	,,
79 bags	South Sea Islands	... 26/	,,
61 bags	Hayti peaberry bought in.		
33 bags	African Liberian	... 26/	,,
165 bags	washed Santos bought in.		
251	packages Mocha bought in.		
14 trcs. 732 brls. 652 bags	Jamaica, part London cleaned, chiefly sold	... 32/	,,

On quay terms:—

374 bags Santos bought in.

Landed last week ...1,577 *tons. Deliveries* ...1,161 *tons. Stock*...15,350
Do. last year ...1,550 ,, ,, ...1,056 ,, ,, ...14,288

PLANTING OPINION.

A WEEKLY JOURNAL

WRITTEN BY PLANTERS FOR PLANTERS.

L. III.] COONOOR, SATURDAY, JUNE 18, 1898. [No. 24.

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UBSCRIPTION.—Advance Rates: Yearly, Fifteen Rupees; Half-yearly t Rupees; Quarterly, Five Rupees, and Monthly, Two Rupees, including age. Single Copies, Eight Annas.

DVERTISEMENTS.—From the 1st October, 1897, the charge for advertisements will be: 4 as. per line for the first, 3 as. for the second, 2 as. for the third and succeeding insertions. Five-line advertisements Subscribers will be inserted for three issues for one rupee; non-Subers will be charged two rupees.

OMESTIC OCCURRENCE.—The fee for inserting a domestic rrence will be *One Rupee* for each insertion, payable in advance.

.B.—Remittances should be sent to the Manager, "Planting Opinion," 2, Second Line Beach, Madras.

IMPORTANT NOTICE.

The Business Offices of this paper having now been oved to Madras, all remittances should be made pay- to the Manager of *Planting Opinion*, 11 and 12, ond Line Beach, Madras, who will also attend to all ertisements, &c.

Letters to the Editor should be addressed to Coonoor, usual.

SEASON REPORTS.

TO OUR SEASON REPORTERS.

Please post your next reports to reach Madras on Friday, the 24th June, 1898.

Season Reports should be sent to the Printers, Messrs. ADDISON & Co., direct, and not to *Planting Opinion* Office.

Nilgiris. KULLAKAMBY, 16*th June*.—*Weather.*—S.-W. Monsoon still blowing strongly and damp drizzly weather continues. *Crops.*—Berries swelling. *General Health.*—Fever still very prevalent, and labour laid up to a great extent.

Coorg. POLLIBETTA, 15*th June*.—*Weather.*—Monsoon set in strongly on 8th with about 70 cents, average daily rainfall since about that figure. Heaviest fall to date yesterday, but wettest day the day before. *Crops.*—Berries swelling. A proportion of the "dubious-looking" ones seem to be coming on. *Labour.*—More coolies wanted in a few cases. *General Health*—Continues good.

Nellampatty (British). 15*th June*.—*Weather.*—Monsoon broke on 7th instant, and since then there has been incessant rain, ranging between 1 and 2 inches daily, till 7th day, when 6·85 was measured here. Total rain before monsoon 9·3 inches. Since monsoon broke 16·9, total to date 25·12. Very high winds, and everything just as usual with our old friend. *Crops.*—Berries swelling nicely, but I gather estimates are a little lower than they were from the blossom. Rice very dear still; 8 measures for Re.1. *Plant-diseases.*—Coffee looking well everywhere, and it is to be hoped that leaf-disease won't attack us, as it did last year, in July. *General Health.*—Very bad. A great many coolies are on the sick list with fever, while the European community is not much better, about a third of the district being more or less ill and off work. *Labour.*—All in in some places, and on others about half in.

THE LANGUAGE AND OPINIONS OF PLANTS.

WHAT are the opinions of plants? That is just your business to find out. And the more accurately you accomplish this feat, the more successful you will be in your business as a planter. In these days of widespread theory, rendered plausible to the many by the glib use of a scanty

stock of scientific terms, one is too apt to forget that the final court of appeal in agriculture lies with the plants. Silent but eloquent witnesses are these, quick to condemn empty theory by their bearing, and speaking with no uncertain voice on the disputed points submitted to them. Yet it is not given to all to understand their language. At times their judgments are given in enigmas, puzzles to be solved, not in the study, but in closer intercourse with the plants themselves. A keen eye, a mind trained in deductive reasoning, and a strong love for nature's secrets, are needed by those who wish to rightly understand and be understanded of the plants. We are all offshoots of Nature's one great stock. But separated by the growth of æons of time, we have lost touch with these once intimate, but now so remote, cousins of ours, the plants. Their reasons are not our reasons, their ways not our ways. We speak a different language now, and our knowledge one of the other is dim and incomplete.

Often has the striking likeness between plant and animal life, between the shrubs we cherish and ourselves, their tenders, half persuaded observers that the knowledge gained by the study of man may be applied with equal profit to plants. As a morsel of abstract reasoning, the truth of this conviction is undoubted. Yet in practice it fails, not from any inherent flaw in the principle, but from lack of knowledge to apply it. The art of reasoning by analogy is the art of reasoning from like to like. To make sure of our conclusions, our premises must be undisputable. It is here that sympathy must yield to logic, it is here that the keenest observation must be aided by reason. Sympathy begets a love of observation; by observation a vast number of isolated fragments of knowledge are gained; to piece these together, to make of them a connected and intelligible whole, this is the work of logic.

Of incidental interest is it to note a curious difference in such plant life as we are most familiar with, that distinguishes it from the higher forms of the animal creation. It is the bi-sexual nature of plants. We do not refer here to the well-known facts of fertilization, to the outward forms and ceremonies of what has been truly called the courtship of plants. It is to the deeper effect such bi-sexuality has on the character of the plant in its very nature. Practical, matter-of-fact readers may sneeringly deride a disquisition into matters of such remote practical interest. Yet, as we have said before, sympathy is one of the indispensable factors of success in even practical plant lore. The sternness of the male nature is, in plants, indissolubly linked with the more pleasing, changing moods of the softer sex. The complex nature arising from the combination affords innumerable points of interest for observation. And in proportion to the fascination of the study is increased likewise its intricacy. It is difficult enough to master the ins and outs of a mere man, twice as hard is the task of unravelling woman. When one nature holds both puzzles, their solution approaches the impossible. And in the many-sided facets of plant life, in its changeful phases, "nor age nor custom can state its infinite variety."

It is so difficult to treat a plant aright. Fixed laws of science may be applied for its well-being, food, air, warmth and moisture may be in the exact requisite quantities. Sometimes these all seem useless. Perhaps it is that the sun shines too brightly, perchance its rays are too shorn of their brilliance. Or it is the aspect that is unpleasing to its coy nature, the wind strikes a chill into its fibres. S mysterious, because unknown, trifle is wanted. If it coffee tree, it may delight your eye by its deep, gl foliage, with a deceitful air of vigour and fruitfulness. is all a hollow sham, a pretence, an empty nothingn Wearied with the unprofitable task, cold neglect and h treatment are now its portion. The mysterious elen wanting to its well-being is suddenly provided by absence of one or many of the profuse attentions it received. As unaccountably as it once failed to respon your care, it now responds to your neglect, by bounteous cr How, or wherefore comes your success, you cannot ea tell. To unravel the mystery of the wanton ways of plant, you must go round and ask of its companions. must obtain, and understand if you can, the opinion plants.

One will tell you one thing, a trifle and not to considered. From another, a further stray chip from mosaic puzzle will be gained. An end here, a fragn there, and in time and with patience, the most contradic pieces will fit themselves together, and the seemi insoluble mystery will be rendered plain and clear. language of plants is in sooth a system of intricate hi glyphics. One plant will answer your most eager quest with a reference to its neighbour. Others will come f with astounding assertions that seem worthy neithe credence nor observation. You can never rest satis with the knowledge you get from individuals even f the same race of botanical and practical identity. specimen will declare that all it wants is moisture, plenty of it. You pause, and test this assertion. there is no doubt that the plant is doing well with bount supplies of moisture. Yet with even a more confi mien, another individual puzzles you by proving tha very moderate amount of moisture is all that is nee You impatiently take a general vote, a sort of plebis from their companions. The answer is annoying; i inconclusive; it only proves what you knew before, it's a of six of one and half a dozen of the other. You try ag and try to discover the real, or some of the real, essen to plant health. You will find that the same result, in matter of health and cropping, will be due to cer combinations of varying essentials. There may be, perh a total of a round dozen, let us say, of essentials in cases. All of these may be present, and yet the resul failure. But a half may be found, and brilliant succes the puzzling answer. It will be found that success failure are governed by the combination of certain of essentials. These combinations are various, but luc their number is not infinite, and with patience may be learned in the fulness of time, aided by sympathy, obse tion and careful reasoning.

NOTES.

American tax on tea. The 10 per cent. war tax on imports, coupled with the effect the war itself, will have a most depressing effect on capture of the American market. The suggestion to su the U. S. Army with some hundred thousand pound tea is an excellent one as regards the advertisement. sure, however, to be strongly discountenanced by Government.

) juice: a good ipe.

A correspondent lately enquired how to make and preserve lime juice on the estate. The following been given us as being an excellent method :—

queeze limes, and strain the juice through cloth. To every of juice add one cup of sugar and boil it. Put it one side for half an hour, then add another cup of sugar and boil again. e, and it will keep for any length of time. Do not put in two of sugar at once, or the juice will not keep. It must be made ove."

fter a little while the top half of the bottle will be and the lower half clear, so shake the bottle before g.

---

rs. Cooper, Cooper l Co's amalgama-n.

We learn, says the *Home and Colonial Mail* of the 27th ultimo, that the proposed amalgamation of Messrs. Cooper, Cooper and Co's ness with a company to be formed acquiring a group Ceylon tea, coffee, and cocoa estates, to which we rred last week, includes, in addition to the Ceylon and ntal Estates Company, the Pallikellie estates and some e Rajawelle estates, also an extensive business in the h of England. It is believed that the combination will s a great stimulus to the trade abroad. The capital ne new company will be nearly three-quarters of a on sterling.

---

vation of stony d.

It is sometimes thought, but not often, that the presence of an excessive number of stones renders vation more expensive and difficult. Weeding, cer-y, is rendered a great deal more difficult and expen- but there is great saving effected in other directions. ns, for instance, both catch and sub-soil, are scarcely ed at all in stony land. The ground is kept so open ne stones that rain soaks in below the surface and s off naturally into the nearest nullahs. Forking, dig- and so on, are really superfluous operations on such For the stones keep the soil so open and porous that further attempts in that direction are quite useless. e soil itself is at all good, the presence of stones adds greatly to the value of the land, despite the extra nse of weeding and the discomforts experienced by master and coolies in working it.

---

coffee trade in erica.

In connection with our remarks elsewhere on establishing a market for plantation products in India, it d decidedly pay to import cheap American coffee to the way for our higher flavoured and more expensive es. East India coffee is not popular in America, writes xchange, and for this reason Sumatra coffee and Mocha e are worth more than is warranted by their intrinsic e. Coffee dealers say that fine Central American or mild growth costing 8*d.* to 10*d.* per lb. will roast er and make a more satisfactory beverage than East a coffee costing 1*s.* to 1*s.* 3*d.* per lb. The market es from 3*d.* to 1*s.* 3½*d.* per lb. for the raw bean. The ed bean retails anywhere from 4½*d.* to 1*s.* 10*d.* per lb. result is the greatest variation in retail cost, and a ce for the shrewd buyer to make use of the prejudice nsumers for Java, or Java and Mocha blended, to sell some other sort for these favourite growths.

Worms in legumes.

Complaints are constantly made of the appearance of worms, etc., in leguminous plants grown from apparently healthy seed that has been carefully stored in closed bottles, writes a contemporary. All leguminosæ should, ere being sown, be steeped in water, as hot as the hand can bear it, for half an hour previous to being put down. As it is stirred about it is astonishing to see the number of wire worms and others that come wriggling out. A good deal of misconception exists as to the vitality of the germ in all seeds and tubers. A curious instance of this came to light in County Galway, Ireland, during the worst stage of the potato blight in 1847-48. A tuber that had been dug from a plot seriously affected by the disease had been inadvertently placed on a hall stove, becoming almost calcined on the outside, the protruding portion of the *eyes* being quite destroyed ; out of curiosity it was sown, producing in due time some half dozen roots, which, on being microscopically examined, proved perfectly healthy.

Cattle trespass.

Cattle trespass is one of the greatest worries a planter has to contend against, and, excepting on the Nilgiris, there is little legal redress. A planter who has some little experience in these matters has written us a simple little plan to reduce the annoyance to its minimum. Instead of the highly illegal and high-handed way of shooting stray cattle, he pounds them on the estate itself. The errant cattle-keeper soon finds out where his cattle have got to, and does his best to persuade the "Doray" to give them up. But our friend insists on being paid the pound fine before he gives up the cattle. The cattleman is only too glad to get off so cheaply, and saved from a perhaps long tramp to the pound, with the consequent impositions from the pound-keeper. The fines are handed over to the coolies who catch the cattle, unless there is great disturbance of work, when half is retained to pay for the lost time. This *bucksheesh* makes coolies very keen on catching all the stray cattle on the estate, and consequently the garden in question is avoided with a holy dread by errant cattle-men. There is some doubt as to the legality of the procedure, but so far it has not been called into question, and it works splendidly. Care, of course, must be taken that the cattle are not detained for more than twenty-four hours.

Retailing coffee and tea in India.

There has been a great deal written on the subject of pushing the retail trade of tea at least in India. We have not up to date seen a really practical suggestion how to accomplish this desired end. It is hopeless at first to get the masses to take to either coffee or tea ; it is beyond their means, however cheap and nasty the qualities given. The upper and middle classes are the ones to be approached. Black coffee, and even the parchment itself, would be roasted and ground up into a powder, after the fashion of cacao husks. Made up into 2 oz. or ¼ lb. lead packets, planters would not find any difficulty in commanding a ready sale for this coffee substitute, and at very remunerative prices too. Better grades of genuine coffee, such as tailings and even No. 3, could be used for the same purpose, selling of course at a much better price. A similar trade could be done with tea, instead of selling the coarsest grades, such as red leaf, at the factory door for what it will

fetch. The aim in both cases, besides working for immediate profit, should be distribute the produce throughout the length and breadth of the country. To create a trade, which would afterwards be able to absorb without the least difficulty all our inferior grades of both coffee and tea.

Very few individual planters will, of course, bother themselves about the matter, but there is an undoubted opening for an enterprising firm or individual. We can confidently assure such that the support and assistance they will get from the planting industry will be a warm one. The requisite capital does not run into very large figures, nor need the warehouses or godowns be fitted with any very elaborate machinery.

The London Market. There has been no new feature this week, reports the *P. M. Review* of the 21st May. The auctions have again contained more than could be sold during the time allowed for them, but notwithstanding the very heavy supplies, the market has been a strong one, and quotations have in most instances been in favour of the sellers. Only a moderate amount of Costa Rica has again been brought forward, and this has in most cases sold well, at an advance of from 1*s.* for medium and common to 2*s.* for fine coloury. East India and Mysore have also attracted a considerable demand, and as the recent arrivals evidently show that only a small quantity more can be expected, prices have been well maintained, and for bold Mysore an advance of 2*s.* to 3*s.* above the prices of the earlier shipments of the same marks has in many cases been paid. In the terminal market hardly any business has been done, and quotations have scarcely varied.

LONDON COFFEE RETURNS.

—	HOME CONSUMPTION.		EXPORT.		STOCK.	
	1898	1897	1898	1897	1898	1897
For the week ended May 14, 1898.	Tons. 314	Tons. 386	Tons. 847	Tons. 670	Tons. 15,350	Tons. 14,288
For the 19 weeks ended May 14, 1898.	5,888	5,567	9,472	6,813	—	—

Indian Teas.—The market shows no material change, as the bulk of the tea now coming forward is of indifferent quality, and has consequently met with only a moderate demand. The kinds most in request are those of earlier import, for which there has been a good market inquiry, and, as the quantity held by importers is extremely small, the principal transactions have been in second-hand parcels. Teas from 10*d.* and upwards are more inquired for, and as these kinds are not in very good supply and stocks are certain to diminish later on, a strong market with a further advance in values is not improbable. At the public sales of this week, out of the 18,451 packages offered, only 3,500 fetched 10*d.* and over, and show a considerable advance from the lowest point, while most of the growths were decidedly inferior in quality. The medium grades have also met with more attention, and all useful descriptions have sold readily at firm prices, pointing to the prospect of a stronger market in the near future. For the com kinds there is a fair inquiry for good liquoring sort steady rates, and there has been more inquiry of tea price, but with a limited quantity offering in leaf under 5¼*d.* Of the 18,451 packages brought forward, large proportion of 4,190 were withdrawn.

The "corner" in tea. Both Calcutta and Ceylon pa are now very much alive to dangers from the feared of "corner" in tea. Every the buying and distributing trade is getting more con trated into the hands of a few large buyers, and th have come to such a pass now that honest competition is almost a thing of the past. The Calcutta *Indian Plan Gazette* proposed some time ago that the planting indu should itself undertake the distribution of its teas, an away with the present brokerage system altogether. however, it has abandoned this scheme, and advises ins a general stoppage of supplies. In other words, to m facture as usual, but keep the tea stored in the fact instead of sending it home. Then, when the st at home are exhausted, there could be such an e enquiry for tea that the ring would be broken and free competition would be the order of the day reads well on paper, and as the Indian tea industr practically all in the hands of a dozen or so large compa it might be feasible, if it were not for Ceylon, not to s of China. As it is, the plan seems to us hopel impracticable. Our contemporary's original plan is r the best. To establish an association large enough to with the whole Indian crop would of course be very co Certainly a million sterling would not be a bit too l for the purpose. A beginning, however, could be mad a distinctly smaller sum, and its development woul merely a matter of time. The details of the scheme w it will be remembered, to form a company at home fo purpose of selling Indian tea direct to the grocery other distributing establishments. The planter w receive a fair market price for his tea in the usual way if a shareholder, on even a small scale, would shar whatever profits were made, competition would be couraged, and rates all round would rise to something their proper position.

Failing this perhaps elaborate scheme, a Ceylon p makes a very sensible proposal. In the old days, w Ceylon teas were new to the trade and in very smal mand, planters began pushing the demand by sen chests and quarter chests direct to their friends and tions throughout the length and breadth of the United K

COFFEE SHADE TREE.

Sun-dried Erythrina Lithosperma loppings, &c., contai ton :—

61·50 lbs. Nitrogen.
57·38 „ Potash.
14·92 „ Lime.
13·68 „ Phosphoric Acid.

Seed cured under Messrs. Sutton and Sons' advice.

Orders should be booked early for the 1898-1899 crop of seed the parent trees of above analysis at Rs.6 per pound conta about 2,000 seeds. *Germination guaranteed.*

Only thornless variety extant, and is not procurable anywhere from the

MANAGER, ARIENKOW ESTATE,
Shencot

This gave a considerable section of the public a ce to know what really good tea was like, and the and rapidly spread. Why not, our Ceylon contem- ry suggests, repeat the experiment? Let every planter a few half or quarter chests, perfectly done up in ets, to all their relations, telling them to insist on get- a like quality from their grocers.

e result would be that the public, which is now paying h price for a very poor article, would be supplied with r tea at very much the same price. Consumption d naturally increase. This scheme is, however, from its nature, merely a temporary alleviative. What is y wanted is to break the ring, and induce the freest of petition. A powerful distributing agency, acting on lf of the producers, who would be its shareholders, is best safeguard from the dangers of a close corporation.

LETTERS TO THE EDITOR.

JÂTS OF NILGIRI TEA.

R,—Some little time ago I ventured to write you a short cism of the ways and methods obtaining on Nilgiri Tea Planta- . It was a case of simple assertion on my part,—assertion I wish to support by reasons. I said the jât generally found nese hills was mostly bad. Such a statement requires sup- only in the matter of definition of what the term "good really means. Applicable to the industry of India and on as a whole, I presume no one will deny that the term ns those species or *jâts* of tea known by the name of Assam or ipur Indigenous Tea. Their main characteristics are their le-stemmed nature of growth, their large and many-ribbed es, the colour of the leaves varying from a yellowish to a glossy green. The characteristics of the tea made from r leaves are intense pungency and strength.

ut on the Nilgiris the term "good jât" has become, so to k, polarised. It means, or is held to mean by many, that which in their opinion is best suited to these hills can alone alled "good jât." I shall, therefore, adopt the more accurate , when speaking of Assam or Manipuri tea, of indigenous Indigenous tea is mostly conspicuous by its absence on the iris. The reason is not far to seek. It is thought to be not kind best suited to the district.

or this district, like some other insignificant localities in er India, may be said to be devoted almost altogether to plying the local market. The sound packet trade is the be-all end-all of nine out of every ten Nilgiri gardens. When I e this, I do not intend to sneer. I am simply stating a fact. v the demands of the local made are very different to those the London market. The very terms of quality, flavour, p" and even of grades, bear a very different meaning in ia than they do at home. Coarse plucking, lack of point, of strength and pungency, so fatal to London sold teas, do matter a jot to the consumer out here. Certain of the above nts, indeed, are positive recommendations. Much pungency is itively disliked. A deep colour, a high-fire and a soft liquor the factors of success in the local trade. In London these lities go by the name of muddy colour, burnt flavour and ntless liquor. It is obvious that what will best suit a Nilgiri l-trade garden is a hardy, quick-flushing plant. Indigenous will give too strong and pungent a liquor, and must moreover ended with more care than it is the fashion here to bestow tea. A hardy quick-growing and good-flushing hybrid, refore, is undoubtedly the best jât for local-trade gardens. t is not difficult to understand when a garden finds the l trade too congested to relieve it of its crop, and send its surplus to London, that the prices obtained are so thoroughly unsatisfactory.

I may, perhaps, pursue this subject further in another letter.

Yours faithfully,
A NILGIRI PLANTER.

GENERAL ARTICLES.

THE U.P.A.S.I. SECTION.

[UNDER THE CONTROL OF THE SECRETARY, U.P.A.S.I.]

THE following is Mr. O. Newport's fourth letter regarding Ladybirds. It is dated Brisbane, 22nd May, 1898:—

I am in receipt of your letter of the 13th April, for which many thanks.

As mentioned to you in my last letter, the funds I have in hand will be ample, and I shall therefore not need any more while away from India.

There is no need for me to write you *re* packing and transit, I think, as I am not sending any consignments before I come. I certainly think *viâ* Tuticorin the better route and will come that way.

With regard to the share of the consignment that is to be sent to the Nilgiris, I could do as the Chairman suggests if thought most advisable. I think, however, that it would be better if I were to divide the consignment at Dindigul, leave half on ice there for a day or two, while I took half up to the Pulneys freeing them and leaving them in my brother's charge there. Then returning and taking the other half to the Nilgiris.

I think this most advisable, as the consignments will have to be examined for parasites on opening. There is no need for me to stay long on the Nilgiris, and I could give the hints for propagation better verbally than by letter.

Distribution is a matter that will come later on, I think. Once on the Hills, a dozen or two of each kind could be sent round to any interested parties to experiment with if desired without any trouble, but it would, I think, be better to let the Ladybirds propagate first and distribute them after acclimatization.

I beg to report that I have at last succeeded in getting a chest that will keep at a fairly low temperature, *i.e.*, above 25° to 35° F. It has been a great deal of trouble and entailed a lot of work and more worry. I hope, however, to be able to bring out my collections safely and alive. I have been collecting steadily and have some 4,000 specimens, chiefly of the three kinds mentioned in my last letter. I trust I shall be able to produce most of these alive in India, but the most trying time is to come, *i.e.*, the voyage back. It will be exceedingly difficult work to keep my brine chest working steadily all the time, but I will do it if it possibly can be done.

I have taken my return passage in the Orient boat *Oroya* leaving Sydney on the 25th instant. I leave here, therefore, on the 25th instant, and hope to arrive at Colombo on the 17th or 18th June.

I will telegraph my arrival to you from Tuticorin.

You will get this letter, I think, a week or so before my arrival. Would you kindly write me to Colombo (c/o Orient Line Agent,) or to Tuticorin (c/o B.I.S.N. Company Agents) informing me where I can obtain ice in Tuticorin, also mentioning any other instruction you may have for me. I anticipate no difficulty about ice at Colombo. On second thoughts, I think my best plan would be to telegraph from Colombo to Messrs. G. Mengel & Co., Dindigul, for a consignment of 50lbs. or so of ice to await my arrival at Tuticorin in any case, (whether I hear from you or not.)

On my arrival in India I shall proceed direct to Dindigul. If you wish to reply to my telegram announcing arrival at Tuticorin, would you kindly wire me at Dindigul, c/o my Agent, S. Rungasawmy Naidu?

I shall not have time, nor will there be any need for me to write again before my arrival.

THE *Madras Mail's* Simla correspondent wired on 15th instant:—

"The Government of India is still awaiting the result of numerous references in connection with the Southern Indian Planters' Enquiry Committee's report, and there is no expectation that these will be received soon enough to enable the Government of India's decision

upon the very large and important questions involved to be issued in time for the Planters' Annual Meeting at Bangalore in August."

This is certainly bad news for our readers. However, if the work is eventually *well done*, a little delay will not be matter for regret. It is to be hoped that the further references that have to be made will result in Government being able to pass final and satisfactory orders.

* * * *

Mr. Newport arrived at Tuticorin, with the ladybirds he has brought, on the morning of Friday, the 17th instant.

JOTTINGS FROM MY NOTE BOOK.

Fire and flushworm. Some months ago I had occasion to burn a couple of tea bushes which contained hornet nests. It was done about a month after the field itself had been low pruned. The job was a thorough one, as I piled up dried prunings all round. The ground itself was charred some two or three inches deep. This month the burnt bushes are flushing most vigorously, and are very nearly equal to the surrounding trees, which were only low pruned. I have lost scarcely nothing in the way of flush; in fact, only two tippings. In a month or two more, to judge from the splendid thick growth of flush from the roots, I expect the burnt tea will be far superior to that merely pruned. The jât,, by the way, is a fair hybrid. The curious thing is, though, that flushworm is just as bad, if not worse, on the burnt tea, than on the pruned bushes.

This does not teach one very much though. For, although the flushworm may pupate under the bush, below the surface, there is nothing to prevent the perfect insect from attacking trees hundreds of yards away from its resting place. So that although the fire may have killed off every poochie under that particular tree, the surrounding trees offered asylum for hundreds more. The only way to test this procedure thoroughly is to experiment on a whole field or patch as remote as possible from any neighbouring tea.

Fire *versus* the knife. I must say I am rather taken with the idea of using fire instead of, or rather in addition to, the knife, especially in old, tangled and neglected tea. I mean to try my worst field anyway. But I shall do it *pucka*. First a couple of men with a bill-hook and a cross-cut saw. With the bill-hook roughly trim the branches that get in the way of the saw. Then saw right to the level of the ground. Following these two men will be a third, with a mamoty and a big pruning knife. He will clear the earth away from the stump, and lay it bare some inches below the surface of the soil. Then he will, with his knife, round off and smooth the cut of the saw, going as far below the surface as he possibly can. Perhaps there ought to be three gangs to every row. First one man with a bill-hook and mamoty to lop the branches off and clear away the soil so as to let the saw get down below the surface. Then the two cross-cut saw men. Lastly, a man to trim the stumps, coat the cut surface with some suitable paint perhaps, and lastly to cover up the stumps well with some three or four inches of earth. This is to prevent the fire-burning the stump itself. Lastly, when all the prunings are nice and dry, and a fair wind is on, I would set fire to the whole show and burn it to ashes. Some old prunings of course would not burn out altogether; these could be collected and burnt in stacks, or else for fuel, for the tea-drier or by the coolies. Anyway, must be got rid of. A deep forking a week afterw would allow the soil to retain the valuable ash, other carried away by rain. The only objection to forking be the young shoots are up is that a good deal of dam may be done by striking the forks against the stumps. little care would avoid this danger.

The result should be grand. In four months or so would have a perfectly new field of tea, to be trained treated in any way you like. Ten to one flush worm, red spider and a hundred other pests would be cleared for a few years at least. The clogged old channels of old tea bushes would be exchanged for perfectly new ways, and what is more, a little careful handling out of superabundant shoots would form ideal bushes for fu pruning.

Handling tea. This brings me straight of rather a novel subject, *i.e.*, the h ling of low-pruned bushes. As a rule, nothing is don shape a low-pruned bush except by subsequent prun I don't see why one should not be able to commence op tions at once, as soon as the bushes are fit for tipping should be inclined to begin tipping a great deal sooner is usually done. Allow, say, six inches of growth onl remain on the bush. Then remove bodily the exces young shoots, leaving one or two only together. Espec clear out the centre. This early tipping will make the s throw out from the lateral buds, giving an immediate sp to the bush. Then allow a couple of weeks to elapse, repeat the operation, leaving an additional six inche growth. Another fortnight repeat, and then ordinary, careful, plucking may be introduced.

This will save an enormous amount of bother herea in pruning. For all low collar pruned bushes, even of good jât, throw up such a dense mass of sub-collar and suckers that, unless handling is undertaken, the resul bush is more like a big grass tussock than a shrub. W hybrids this is notably the case, and as to Chinas, enough to make an angel weep.

To train Chinas. It is an awful task to train C bushes in the way they should g and when they are old and hardened sinners, the job is v very hard. Ordinarily low pruning has only a very s effect at betterment; indeed, I often think it is worse t letting them alone. A passable way is to leave on dozen stems or so, say a foot long or less, and clear the rest below the surface. It's expensive work this. I inclined to think that a rough hack down to the grou piling the prunings over the site and burning them stri *in situ* might be of use. The action of the fire would out the mass of suckers and thread stems in the centr what was the bush. Subsequent growth would proba not be quite so dense, and by avoiding low pruning taking all possible care to preserve the fresh stems, plaguey Chinas might be wheeled into line. Digging t out and replanting with good jât is possible, but not in pensive.

I should not attempt to dig out each bush singly undertook the job at all. I should prefer beginning, say a cross drain, when the upper side is some two feet ab

lrain level. Then I should have the whole block dug to that level, every bit of root or stem above that to be carefully picked and burnt. The cost would uite fifty rupees per acre, but not more, I think. ng for the new plants would be unnecessary.

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l cultivation.

Is there no economic tree at all that might be interplanted in tea, a view to getting a second crop to rely on? I don't mean e that will not only do no harm to the tea, but actually fit it, and at the same time give remunerative crops the minimum of attention. That's all bunkum. But tree that, if carefully planted at a good distance , would not appreciably injure the tea, if manured cultivated. In the low country, rubber seems just the r. But higher up, fruit trees and camphor are about nly plants of any importance. Coolies would give an l amount of trouble with the fruit, and as to camphor, can't get any plants or seed anywhere.

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vation of steep ates.

My estate is a very steep one, and how best to cultivate it is a problem that has been worrying me a long time. Terraces I don't think would answer, gh I am open to correction on this point. Digging is tically impossible for fear of wash, renovation pits are arous inventions, and yet the soil must be kept open. inclined to think that deep down drains or trenches, wing the steepest line of descent, would not be a bad The drains must be narrow, or they will dry the oo much. They must be deep, or they won't aërate it iently. They must be fairly close together, or their t will not be great enough. I should begin, I think, aving a drain every other row of trees, say two, or even foot deep, by one or one and-a-half foot broad, the ower the better. There would practically be no scour e drains were every other row, and ordinary side catch s provided to carry off excessive rains. These catch s should be big and deep, by the way. There would e much objection either to block these down trenches tervals of every few trees by leaving, say, a foot or two rth undug. Water collected above would very soon plate through the wall. There is one thing, though, ast this. Silt, leaves, &c., would soon fill up the ends, *then* a big shower might do damage. No, on second ghts, I should say it were best to keep them open from o bottom.

might well be in some districts that the ground would oo dried up. Well, in that case, I should dig the s just the same, but have them all filled up at the end he monsoon. Next year I would dig the drains in alternate rows, and likewise fill them up. In filling in, y stone handy, large or small, should be thrown in at ottom of the drain. If it were possible to make large on the estate, something like an exaggerated country I fancy it would pay well to use them. In that case, y twenty feet would be about enough to have a drain. t is the precise object of all this expense? Well, let ok at what the cost would actually be, letting the tiles e. The actual cost of digging drains, say, two feet deep ne foot broad every alternate row would not be more than 30 rupees. Allow ten rupees an acre for the saving of forking, &c., and the extra cost is reduced to Rs.20 per acre, or Rs.40 for two years. Well, for this sum, you have your soil kept perfectly sweet and open. Nitrification will go on at double the rate it did before, and every bit of manure you put down will be turned into soluble plant food, instead of half being wasted as heretofore. Then there's the permanence of the work. You needn't trouble about anything more than keeping the land clean. It's a thing, though, that has to be tried and not talked about.

MANAGEMENT OF LABOUR.

A JORHAT planter, writing to a contemporary, gives his ideas thereby on the management of estate labour. I remember years ago it was my own idea to supervise everything myself, and I thought nothing could be right unless I had a finger in the pie. I happened to be on a trip round seeing some well-known gardens and had a long talk with an old well-known Assam planter, who has now gone to the happy tea lands, about managing coolies. His argument was that natives could manage natives and get more out of them than Europeans could; and besides, he said, if you paid your native establishment, why not make them work for their pay, instead of you doing their work. Again, if you make a certain head native responsible for the coolies, you have only one man to deal with, and it is far easier for you to deal with one man than with hundreds. Again, your head man begins to know your way of working, and should you be taken ill or have to leave, the work goes on the same as usual. Again, if the European is always with the coolies, the sirdars get lazy, as all responsibility is taken from them, besides the coolies lose their fear for the sahib, and when he is not there do not obey the sirdars, &c., as they should. These were the main points. I was so impressed by all this, that when I got back to my garden I by degrees changed my way of working and have never regretted it. I know men will at once say that your head mohurrir will have all the power and make full use of it, and that you yourself will be a nonentity. Of course, if you do not know your work there is every chance of this happening, but if you know your work well, and your mohurrir knows that you do, he will not for his own sake try his tricks. It is much better that the European, the head of the whole garden, should be kept in good health for the good working of the garden, for if he goes down sick, it is like removing the governor from an engine, it then works erratically. Of course, I do not mean to say the European should leave everything to his natives and sit in his long chair in his verandah and believe everything his mohurrirs, &c., choose to tell him. What I mean is that he should go round his work and satisfy himself that his men are working properly and not interfere with them if they are doing well. Even should they be doing not just as you yourself would do, but still are doing the main thing well, I would not interfere then, but would another time suggest to the man in charge how you would like it done. By doing this I find the men begin to *think* about their work and see among themselves who works cheapest. Over and over again when I have wanted any certain piece of work done, I have suggested so many men being taken to do it, but my man would say, "Oh, sahib, I do not want so many people, and I will promise to have it done for you." Another thing. I always tell my head men what I am striving to do in the garden work, so as to let them see how one work dovetails into another, and it is wonderful how they begin to understand and give valuable suggestions. Of course, I do not mean to say all this is done without many worries and vexations of spirit, but still I say if you can manage the above, it is better than acting yourself as head mohurrir, sirdar, and line chowkedar

all rolled in one, and saves one an immense amount of tear and wear.

VANILLA.

THE large amount of atttention given recently in America to this article, and which called forth five papers on the subject before the New York College of Pharmacy, is not explained, as far as I have been able to learn, by any incident of trade such as a deficiency or plethora of supply. That vanilla, however, deserves a great deal more of attention than it receives from growers is readily conceded. The plant is an orchid that flourishes in low levels between 1,000 and 2,000 feet above the sea, which explains its neglect by European enterprise. It is cultivated on the slopes of the Cordilleras, in Java, Mauritius, Tahiti, the West Indies, Mexico, Zanzibar, Seychelles and Réunion. The locality in Southern India, which appears best adapted for it, seems to me to be the few miles of country that intervenes between the town of Mettapollium, the railway terminus for Nilgiris, and the foot of the Coonoor Ghaut. Its elevation is exactly that in which the plant is known to thrive. The areca nut, on which it luxuriates, abounds in the locality. The air is humid and cool and laden with the fragrance of fruit and fruit trees that grow by the way-side, and that is inhaled with pleasure by the weary traveller as he completes his hot journey from the plains to his mountain destination. Beyond these natural advantages, I am not aware that the locality is specially adapted for vanilla, as no attempt has yet been made there to grow it—nor have I heard that any other locality was ever tried, so that my opinion is merely an impression, and no more.

The leaves of the vanilla are a thick glucose, oblong in shape, and the plantations a height of 45 feet, yielding a crop in the third year and continuing to bear for 30 years, from 40 to 55 beans, which are ready for gathering in the months of April, May, and June. The harvest, however, must be before the beans attain complete maturity and before they lose their greenish tint. According to the method of preparation pursued in Mexico, the beans, after gathering, are exposed to the sun wrapped in blankets; they are afterwards stored in boxes from 12 to 15 hours, by which time they acquire a coffee colour. To arrive at the proper brown tint desired, two months' preparation is necessary of this alternate drying and wrapping up, and when the process is complete, the beans are stowed away in boxes of 50 each and despatched to market. There is another method of preparation by which 500 or 1,000 in beans are tied in a bundle and steeped in boiling water which has the effect of blackening them. They are then exposed to the sun, rubbed with oil to prevent the stem bursting and wrapped in cotton wool moistened with oil. When drying, a sticky dark liquid exudes which must be rubbed off: the loss of weight thus caused amounts to about 25 per cent. of the weight of the beans. The best pods are from 7 to 9 inches in length, and if properly prepared should have a "silvering" all over them which is produced by a crystallizing salt called "rime" that forms on the outside. Half the world's requirements in the way of vanilla is supplied by Réunion,—Mexico being the next in importance as a country of export. France takes a large quantity of vanilla, but both the supply and demand fluctuates. Vanilla is treated as a spice and is aromatic. The roots are very liable during cultivation to attacks by ants, from which they must be preserved. The plant has a tendency to spread literally, which should be encouraged by placing bamboo tatties for it to extend over. For the curing, a dry open shed is required, and the pods should be arranged in it on tie dry gradually. When packed, each bean is separately wra in clean paper. All the operations in the curing proces very delicate and must be performed with care. The must be soft and retain all the "silvery," or it will be rej by the buyers as inferior. The tendency to split must be fully watched and prevented by the application of oil, repl in the sun as often as it is necessary till the desired darkn colour is obtained. The sunning takes as many as 20 days, and if the weather renders the drying to be perfo under shelter, equal care is needed in the regulation o temperature of the shed which should not fall below 95 de or rise above 125 degrees. It is usual in drying with art heat to complete the process in the sun. The flowers o vanilla need fertilizing and the plant seeds freely.—*The Pla*

NEW SEASON FOR CHINA TEAS.

As a sign of the commencement of another season for teas, it was cabled, and duly reported by us in our last that the market had opened at Kiukiang on the 9th instan that settlements at Hankow had already been made at above those ruling there in May, 1897. Those engaged i China branch of the London tea trade will, therefore, soo looking forward to receiving fresh supplies of their fav description of tea; and a new interest will be awakened i character and extent of the new crops in the "Flowery L for 1898-99. Most parties agree in stating that, so far as present known, the entire crop promises to be larger th 1897-98, which is satisfactory, as in previous years ther been a heavy falling-off in the production of China tea. T proved by the fact that in 1897-98 the total crop did not more than about 582,000 half-chests, as contrasted with 64 half-chests in 1896-97, and 811,000 half-chests in 1895-96.

It is, however, too plain that if the new crops of China t turn out well, the full benefit to be derived from this fac not be enjoyed by the British consumers, but rather b foreigners who prefer that kind of tea to any other. Thu that, whilst the agents acting for English firms are s looking on there, the Russian buyers at Hankow are ac securing all the best supplies as they arrive, and a good bu is being done on their account, whereas last year they op very cautiously at the outset. As evidence of the dimi rate of consumption of China tea in this country, it m mentioned that the deliveries for home use during the firs months of 1898 have been only 5,127,950 lbs., against 6,19 lbs. in the same period of 1897, and 6,535,300 lbs. in Singularly enough, the quantity of China tea exported fro United Kingdom in the four months ended April 30 last prised 5,812,940 lbs., or 684,990 lbs. more than the a consumed in these isles; but the foregoing total of 5,812,9 was lighter than those pertaining to 1897 and 1896, when four months 6,038,366 lbs. and 6,149,922 lbs., respective China tea were shipped hence to foreign parts. The expo all other kinds of tea together (Indian, Ceylon, &c.) to da not embrace above 6,466,520 lbs., in comparison with 5,58 lbs. and 4,048,150 lbs. in the two preceding years, showing China tea, in this respect at least, takes the lead with sh to the Continent and elsewhere.

The new season opens with a London stock of old Congo of the smallest that has ever been seen, it having been at t of last month only 6,778,650 lbs., as opposed to 8,101,75 in 1897 and 13,601,350 lbs. in 1896; and with this deficie the available supply on hand there is a corresponding po

MILLIE & REDMOND, late P. THOMPSON & CO., *Ootacamund, Engineers and Contractors.*

assortment on offer. Such being the statistical position na tea, there is some reason to hope that, when the coming ls of new Monings and Kaisows appear on the market here, vill meet with a better reception both from the dealers and ers than they did last year, and so impart a healthier tone trade all round. A similar feeling of hopefulness was ex- d in May, 1897, when there was a good deal of talk about hine-made" tea as a novelty in Chinese manufacture, and possibility of its taking the place of Indian and Ceylon, delicacy of flavour, united with a little pungency, was an ial condition with the purchaser. Yet it was not the s anticipated, and the chief manufacturers at Foochow d losses of 3*d.* to 4*d.* per lb. on the red leaf teas sent to n. The truth is, the home trade did not take very kindly m, not liking to try the experiment of them in their blends, for fear they should not exactly please the tastes r customers; and, worse than all, exporters would hardly t the teas turned out under the new process. But, not- anding these reverses, the makers of these teas have no ion of giving up their enterprise, from a conviction that re an undoubted improvement on the old style, as the teas uch admired by some tasters and drinkers for being thick, , and full of delicate aroma—a flavour which is greatly ed by consumers of a more fastidious class. When more known and appreciated, it is possible that China teas ced from the machine will find their way more freely into nption and thus help to fulfil the predictions originally d concerning them.—*The Grocer.*

SOME DANGERS OF IRRIGATION.

advent of the South-West Monsoon may not seem a particularly well chosen for the discussion of such a t as irrigation. Nevertheless, many of the points in connection with drainage are fully applicable to esent season.

a late number we had occasion to remark on the value gation to tea in the matter of ensuring larger crops. lisadvantages of the operation alluded to then it is ur intention to discuss. The best quality and greatest ity of flush is produced in the warmer and showery s—not monsoon time, be it observed. Likewise ged hot, dry weather, under ordinary circumstances, s flush, and what there is is poor in quality. Unless lly managed, irrigation will tend to produce a much flush than the bush can safely give, and with conse- loss in the quality of the tea. While, up to a certain water aids greatly in solving inert plant food in the et there is a danger of the plant exhausting the sooner than the loss can be made good. So that the soil is of exceptionally rich character, manure is lispensable adjunct to irrigation. No one will grudge tra expense of course, as the increase in yield is so n and rapid. Manuring brings us to an interesting t, *i.e.*, the best manner of application in conjunction rrigation. This depends of course on how the irriga- carried out. If it be the ordinary way of leading into pits dug between every few plants, it is obvious anure should be neither in those pits nor close below especially in the case of poonacs and the like. gain is surface manuring to be advocated on steep Eye-brow pits above, or one side of the trees, are os to be recommended. The principle underlying this is of course that the moisture should *ascend* to the manure, and not, by rushing through it, carry its soluble portions out of the reach of the plant roots. It would be preferable, indeed, were the labour available, to defer the application of manure until, say, a month had elapsed from the first watering. In this way the manure could be easily applied so as to avoid all risks of wastage.

The two real dangers of irrigation are, however, more serious by far. Firstly comes the more obvious danger of over-soaking the subsoil, stopping efficient drainage, and blocking up the pores of the soil; the formation, in fact, of sour soil. Acidity in soils is not only the cause of the suspension of fertility, but actually destroys the valuable nitrates present, resolving them into their original elements. Perfect and deep drainage, therefore, is essential, and the flatter and heavier the land, the more imperative its claims. Irrigation pits on steep land should be dug in rows running *down* the hill, so that the contents of each pit may be allowed to drain naturally and easily into the one below it through the intervening subsoil. Water, of course, would not be applied from top to bottom, as this would scour the land dreadfully; it would, on the contrary, be allowed to flow down one main channel only, and be turned off into side rows, filling each pit gradually. As soon as the end pit was filled, the water channel would be blocked and opened a little lower down. A single down main channel would be necessary for each block. If made deep and narrow, the scour would not be appreciable. Care should be exercised that but a small volume of water should run down this channel.

The other evil, and none the less real from its seeming remoteness, is the surcharging of the soil with noxious salts deposited by the irrigation water. The well-known barren salt wastes known as *reh* or *usar* land in Upper and Central India afford striking testimony of the fatal effects of badly managed irrigation. If thoroughly efficient drainage be provided, the harmful salts will be carried away by the surplus water. Should, however, the drainage be insufficient, or should there not be surplus water available, the salts will remain and accumulate to a most harmful extent in the soil.

It is therefore clear that, while irrigation under intelligent management may be productive of great benefits, grave dangers attend its unskilled use. We have so persistently advocated the claims of irrigation in the past that it must not be thought to have changed in our convictions. In pointing out the dangers to be avoided, we hold we are doing the cause benefit. While advocating precautions, we are far, very far, from discouraging experiments.

BEE-KEEPING ON THE NILGIRIS.

Honey, which ought to be a most profitable article of trade, is conspicuous by its absence, except when sold by some native who has come across a hive by accident. A few years ago, before forests were reserved, game laws passed, etc., honey found its way into the station and was readily bought up by consumers who, not knowing the history, swallowed the proverbial "peck of dirt" in happy ignorance; had they had an inkling of the manipulation and rag-straining process, it is very doubtful if they would have looked at it even. The Forest Department promptly put a stop to the rifling of hives when it

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BANKERS:—MESSRS. BARCLAY & CO., LD.,

[w 15-11-98.] *Lombard St.*

essitated a jungle tree being hacked to pieces, and it also nd honey and wax a proved profitable form of revenue. The me and Forest Act came none too soon, and the poaching daga and pariah discovered a 15-rupee license rather beyond means, and with the discovery, the sale of honey in the station antly ceased.

But not so in the Wynaad and other jungles. There the rmous quantities of wax and honey tempted the Kurunta and ila to pay the necessary sum and secure a rich harvest, which y do to this day. Or failing this, the same is collected for vernment by the Forest officials and their subordinates.

n the Wynaad one of the chief sources of the honey-supply ound under the arches of the great bridge spanning the river t divides the Mysore territory from the Wynaad. Countless arms cluster in immense bunches underneath, and the combs simply gigantic in size, often measuring 3 to 4 feet in length over a foot in depth, fining off to 4 or 6 inches at the edges. ch cell is three-fourths of an inch deep or more, and wide in portion. A single hive has been known to contain several ge earthen water pots, such as native women use. This rticular honey is made by the large giant bee, a most savage d fierce variety, as remarkable for its size as its sting; in fact, y people would care to own a hive of them in their garden; , easily roused, they attack man or beast with a ferocity that nequalled, following the victim for long distances with an gry roar that is as terrifying as it is strange. This bee will en build on trees, hanging the honeycombs on to the larger nches. Close to the trunk, a dozen hives will settle in a tree, d woe to him who seeks shelter under the boughs and rouses ir ire by smoking or lighting a fire, or in fact doing anything tating to apic sensibilities.

A well-known forest officer, who ought to have known better, nped under a famous mango tree in the Wynaad, a tree noted its hives. Preparatory to lunch he threw himself down, and a cheroot. His unfortunate horse, tethered close by, cropped the grass near, when without an instant's warning a cloud of s came down like a whirlwind. It was a case of each man himself, and the devil took the poor horse; tied, with no nce of escape, the poor brute in a moment became the object ttack. In vain he rolled and screamed in his agony, his iless tormentors wreaked their rage upon his form, till th mercilessly released him from his sufferings.

n Ootacamund itself the large bee seldom settles, and when does, he lets people know it; the post office or church offer al attraction, and he settles for a while, but his presence is tolerated, and the hive has "to move on."

To hear a hive migrating is one of the most appalling sounds ceivable: the extraordinary roar of the musical hum moves rhead like an express train, but it is the fearful menace of tone that terrifies; imagine several swarms infuriated eeping down on you at once. Brave indeed need the man be o can keep his head under such trying circumstances!

To return to bee culture. It is needless to remark that no cares to hive this particular branch of the apic family; and, the honey is nothing like so good or rich as that of medium-sized kind, the preference is always given to the latter, and this bee, not unlike his European cousin, is a tractable steady worker; he has his fancies, and will leave you in the lurch if he thinks it time to change his abode, and he will drink up all his honey if the weather promises to change; but with all his vagaries, he can be tamed and made to produce a very fair quantity and quality of honey. One fact has always to be borne in mind, and that is, that when the wild Lobelia is in blossom, to avoid eating honey. The rank poisonous nature of the flower is communicated to the nectar, and the honey is not only deleterious, but distinctly unpleasant in taste, catching the throat and inducing giddiness and nausea. Birds, however, do not seem to mind, and they may be seen swinging on the flower-heads, having a royal feast. Besides the Lobelia, the blossom of the Acanthus is apt to cause illness if the honey is eaten. These two flowers seem the only ones that affect the quality. After a hive is disturbed, or on a swarm separating, a curious feature may be noticed, namely, the suicide of the drones. These unfortunates, bereft of hope, commit *felo de se* in a way quite their own. After buzzing desperately around, they inflate their bodies till the wings in the abdomen separate, and with a little splutter the contents burst out, and the bee falls dead. Whether other bees do this or not may be known or otherwise, but there is no doubt of the fact. Of course, it may be traced to stings inflicted inside the hive, which would drive the injured creature out to buzz about in pain, and the stung portion to give way in the efforts made to find relief.

A third kind of bee is a tiny one, very little larger than a house fly. This one frequents the slopes of the hills and is very common on coffee estates, where its presence in flowering time is a god-send to the planter, but no cooly will spare the dainty little comb clinging to a twig with its little fan below of young bee; all find their way into the greedy maw. This rifling of hives on estates ought to be heavily punished, for so much depends on the blossom being fertilised by bees.

The honey of the small bee is most fragrant, rich and sweet, the nest is built in the open air inside some thick bush, thorn for preference, for the little bee has a horror of hawks, and several of the hill birds worry its life out. An inquiring hawk will pry into any bush in search of a hive, and the "wait-a-bit" and "Mysore thorn" and one or two others seem to deter it in its quest. In bygone days the Badagas were in the habit of bringing the honeycombed twigs, and delicious they were for a breakfast dish, often found in all sizes, from as big as a goose's egg to a roly-poly pudding; these combs could be either cut off or eaten off the twigs as you would pick a bone; the prices ranging from an anna to three or four at the outside, supplied you with this delicacy that is never seen in the present day, not that they are no longer found, but the heavy fine deters the finders from selling the combs, so the honey is eaten on the spot.

Bees have been introduced at different times, and at this present moment there are dozens of swarms that have got away and are in the sholas about, but no one seems to be able to give an intelligent history of their introduction or what they did; planters at Kotagherry have the credit of keeping Italian bees, but though Kotagherry is but 16 miles from Ootacamund, no one knows anything that goes on there, except perhaps a dish of scandal, and that as often as not goes further, even the sea in no way cutting off the news.

Agriculture on the hills may answer better in warm dry climates, such as Kotagherry, Coonoor, Kuthully and other places, and the residents have kept the medium-sized bee with fair success. There is no doubt that a warmer climate would suit both the indigenous and imported varieties better than Ootacamund itself, for the monsoon is decidedly trying, and the flowers have no chance of blossoming, while the honey is all washed out.—APIS INDICA in *Indian Gardening*.

CENTRAL HOTEL.
INFANTRY ROAD, BANGALORE.
(Under English Management.)
The most comfortable and convenient for visitors.
TERMS MODERATE.

DISTRICT ASSOCIATIONS.

KANAN DEVAN.

Minutes of Annual General Meeting, held at Manalle on 28th May, 1898.

PRESENT:—Baron J. vonRosenberg (*Chairman*); Messrs. W. Milne, C. N. Thomson, R. F. Russell, A. H. Mead, C. Burn Murdoch, J. Hamilton Hunter, T. W. Schmid, R. Hedger, H. M. Knight, W. D. Martin, A. H. Sharp (*Honorary Secretary*), J. S. Sealy (*Honorary Member*), L. Davidson.

The Chairman, in a brief introductory speech, revised the past year. With reference to the Currency Commission, he pointed out the dangers now menacing producing exporters and the certainty of ultimate reaction on importers and Government as well. He asked the Association to pass a vote of thanks to the Chairman and Secretary of the U.P.A.S.I. for the prompt measures taken to ensure representation of planting interests. As to the report of the S.I.P.E. Committee, he expressed a hope that something definite as to the Supreme Government's intentions would transpire before the Annual Meeting of the U.P.A.S.I. in August next. After reference to some local matters, he asked the Association to welcome the new District Magistrate, Mr. J. Sealy, and to elect him an honorary member. He considered Mr. Sealy's appointment a kind of recognition by the Travancore Government of the predominating importance of the planting district, while regretting that the Central Travancore Association should have been left without a European Magistrate. It was to be hoped, he said, that the Travancore Government would not confine its recognition to magisterial matters, but would grant finally and fully that help in roads and communications which it had extended to the other planting districts of Travancore.

Minutes of last meeting were taken as read and confirmed.

The accounts for the past year were passed, having been circulated previous to the meeting.

The following office-bearers were elected for the ensuing year :—

Chairman.—Baron J. vonRosenberg.

Honorary Secretary.—Mr. A. H. Sharp.

Committee.—Messrs. W. Milne, H. W. Knight, L. Davidson, and W. D. Martin.

Roads and Communications.—*Read* letter from the Collector of Madura giving cover to copy of Proceedings of the Public Works Department, Madras Government, ruling that a new road should be constructed between Bodinaikanur and the Government of Messrs. Findlay, Muir and Co.'s proposed aërial ropeway at Kotagudi. The District Board agrees to pay one-fourth of the cost of this road. If the planters will contribute as much, His Excellency the Governor in Council will be prepared to provide the value from Provincial funds. It also stated that the insanitary condition of Bodinaikanur will be considered in the Local and Municipal Department. It was proposed by Mr. Knight that, while thanking both Government and the Board for their offer, His Excellency the Governor in Council should be requested to reconsider the question of asking the planters to pay one-fourth of the cost, taking into due consideration the large amount of money now going out of the district into the Madras Presidency. *Seconded* by Mr. Hedger and carried.

No. $\frac{508}{\text{Board}}$ 17-5-98.

G.O., No. $\frac{2407\text{C.}}{5\text{-}5\text{-}98}$

Read copy of resolutions passed at Proceedings, No. 18, of 1898, of the Madura District Board, viz. :—That the Board resolves to put the road as far as Bodinaikanur into good order as far as their funds permit, and that they would bear one-fourth of the cost of the proposed road from Bodinaikanur to Kotagudi, and that in the event of the new road being made, the present allotment for the Devikulam Ghât will be withdrawn.

Resolved that the Honorary Secretary continue to correspond with the Board on the subject, and that with regard to the proposal to withdraw the annual allotment from the Devikulam Ghât, this Association is of opinion that the members of the District Board must be labouring under a misapprehension in regard to the necessity of continuing their vote for the upkeep of this Ghât road. This Association is of opinion that the large amount of extra t being thrown on this road through extension of cultivation alon course justifies the hope that the allotment will, in future, be incre rather than diminished.

Read letter from the President, Taluk Board, Dindigul, h reference to the maintenance of the Bodinaik Ghât Road. Mr. Knight undertook the ma nance for the current year. *Proposed* by Davidson that a cess of 4 annas per acre be l the current year to pay the deficit on last y upkeep of the Devikulam to Mettu road. *Seconded* by Mr. Sc and *carried*.

R. and C., 206 of '98
18-3-98

It was resolved that the Honorary Secretary should continu correspondence with reference to the Pallapallyam-Chinnaar roa

Read letter from the Dewan of Travancore stating that Highness the Maha Rajah has been pleased to sanction an a maintenance grant of Rs.40 per mile for the whole distance of 21 of the path from Munaar to Devikulam and on to the Bodinaik mettu with effect from the beginning of 1073.

A vote of thanks to His Highness was recorded.

Insanitary Condition of Bodinaikanur.—*Proposed* by Davidson that this Association deplores the continued neglect o sanitary arrangements at Bodinaikanur by the responsible autho and strongly urges on Government the necessity of issuing o that immediate steps be taken for cleaning the town to preven spread of cholera which has recently broken out there. *Seco* by Mr. Murdoch and *carried*.

Dilatoriness of the Police.—*Read* letter from the Superinte of the Travancore Police giving cover to co instructions to the Assistant Superintende Police, Kottayam, with reference to the exec of certain warrants. *Resolved* that, as instructions do not seem to have had any effect, Mr. Sharp send a reliable person at the cost of the Association to accom the warrants and see them duly executed.

No. 212
30-3-98

Bodinaikanur Rest House.—*Proposed* by Baron J. vonRose that a sub-committee consisting of the Chairman and Hon Secretary, with Messrs. H. M. Knight, R. Hedge, and F. W. Sc be formed to consider the question of the new rest-house.

Telegraphs.—*Proposed* by Mr. Knight that the telegraph at Devikulam not yet having been opened, the following telegra sent to the Director-General of Telegraphs that "This As tion respectfully begs to bring to your notice that the telegraph at Devikulam has not yet been opened, although all is ready. I venience caused thereby very great." *Seconded* by Mr. W Martin and *carried*.

Artisans.—A resolution was passed that artisans leaving during working hours for the purpose of taking meals sha obliged to make good the time so occupied by working afte evening bell sounds.

The meeting then closed with a vote of thanks to the Chairm

A. H. SHARP,
Honorary Secreta

MARKET REPORT.

COFFEE.

Messrs. R. J. Rouse & Co.'s Weekly Coffee Report (May 27, 1898) sa

Public Sales were only held on Tuesday this week in consequence Whitsuntide holidays and will not be resumed till Thursday, 2nd Ju

About 1,500 bags East India were catalogued and met a steady de previous values being well maintained.

A quieter tone prevailed in Central American descriptions and were rather irregular and in some cases slightly easier.

The Terme Market has again been quiet with very little business p and quotations are practically unchanged since our last.

srs. Wm. Jas. and Hy. Thompson's Report of the Colonial Markets for eek ending May 25th, 1898, says :—Bank rate 4°/₀. Bombay Exchange at 1s. 3 3/32d. Brazil Exchange 6¼d. Rupee paper 3½°/₀ 62⅛. Silver per oz.

market has been steady throughout the past week, and prices shew nge; the demand at auction continues very steady for almost all Brazil markets are dull.

y receipts averaged 7,400 bags in Rio and 6,500 bags in Santos.

ures: A quiet, tone has prevailed, prices shewing little alteration, Good average Santos in Havre, September delivery, fcs. 36,25, in urg pf. 30½, and No. 7 low ordinary Rio in New York $5.65.

lay's London official quotations are :—

	May	July	Sept.	Dec., '98.	Mar.	May, '99.
ANTOS ...	29/	29/3	29/9	30/3	30/9	31/

quote :—

n, mid. to good mid.	96/@107/	Costa Rica, mid. to fine...	72/@107/
small to low mid.	80/ „ 93/	Do. ord. to low middling.	46/ „ 70/
India, mid. to good mid...	77/ „ 92/	Jamaica, good to fine ord.	33/ „ 51/
small to low mid.	60/ „ 75/	Do. greenish to fine colory...	70/ „ 125/
mala, mid. to fine...	70/ „ 100/	African ...	26/ „ 29/
good ord. to low mid...	54/ „ 68/	Columbian, ordinary ...	35/ „ 43/
dor, good ord. foxy greenish...	41/ „ 43/	Do. good ord. to low mid...	44/ „ 64/
		Do. mid. to fine...	65/ „ 93/

eipts in Brazil to 25th May compare as follows with previous :—

	1897-98. Bags.	1896-97. Bags.	1895-96. Bags.
IO	4,061,000	3,306,000	2,186,000
ANTOS	5,951,000	4,892,000	2,867,000
	10,012,000	8,198,000	5,053,000

In Sale—

bags East India.	1,414 bags Mysore, chiefly sold	... 58/6@108/
	1,528 bags Coorg „ „	... 48/ „108/
	899 bags Neilgherry „	... 42/ „100/
	71 bags Shevaroy, partly sold	... 43/ „ 72/
	115 bags Wynaad „	... 55/ „ 77/
3 bags	Costa Rica, part London cleaned, chiefly sold	... 43/ „104/
7 bags	Guatemala „ „ „	... 35/ „ 96/
3 bags	Salvador „ „ „	... 42/6 „ 95/
bags	Nicaragua, chiefly sold	... 42/ „ 53/
3 bags	Mexican, part London cleaned, chiefly sold	... 55/ „ 91/
bags	Peruvian, damaged sold.	
bags	Vera Paz and Coban	... 49/ @107/
bags	Columbian, part London cleaned, chiefly sold	... 36/6 „ 98/6
3 bags	Bolivian, damaged	... 46/ „ —
3 bags	Central American bought in.	
packages	Mocha bought in.	
trcs. 218 brls. 332 bags	Jamaica, part London cleaned, chiefly sold	... 34/ „117/

ded last week ...1,605 *tons. Deliveries* ... 986 *tons. Stock*...15,969 *tons.*
o. last year ...1,103 „ „ ...1,146 „ „ ...14,245 „

TEA.

srs. Gow, Wilson and Stanton's Indian, Ceylon, and Java Tea Report, May 27th, 1898, says :—

QUANTITY BROUGHT TO AUCTION IN LONDON

FROM 1ST JUNE TO DATE.

	Indian.	Ceylon.	Java.
7-1898...	1,582,702 packages.	1,177,100 packages.	43,918 packages.
6-1897...	1,547,708 „	1,124,234 „	46,073 „

7 *pkgs.* INDIAN
7 „ CEYLON
3 „ JAVA
} Total 44,167 packages were offered in public auction this week.

e Average Price of Indian Tea sold on Garden account during the season was 8·64d., against 9d. during the season ending 31st May, and 8¾d. during the season ending 31st May, 1896, viz. :—

1897-8.		1896-7.		1895-6.	
pkgs.	price.	pkgs.	price.	pkgs.	price.
,136,837	8·64d.	1,054,954	9d.	960,544	8¾d.

The average price obtained by each District for each of the past three seasons is shown in the following table :

	1897-8. Pkgs.	1897-8. Price.	1896-7. Pkgs.	1896-7. Price.	1895-6. Pkgs.	1895-6. Price.
Assam ...	535,458 p	9·87	506,370 p	10·18	466.913 p	10
Cachar & Sylhet ...	312,651 p	6·85	298.818 p	7·29	263,098 p	7¼
Chittagong ...	5,686 p	7·15	3,298 p	7·48	3,887 p	7
Chota Nagpore ...	1,920 p	5·08	2,057 p	5·12	2,104 p	5½
Darjeeling ...	66,721 p	11·10	58,603 p	1/·38	55,424 p	11⅛
Dooars ...	145,154 p	7·44	129,270 p	7·55	116,000 p	7¼
Neilgherry ...	6,522 p	6·91	4,516 p	7·06	4,897 p	7⅛
Terai ...	20,016 p	7·19	13,508 p	7·21	11,012 p	7¼
Travancore ...	34,212 p	6·36	32,281 p	7	31,557 p	7¼
Kangra Valley, Kumaon, Dehra Doon	8,497 p	7·11	6,233 p	7·07	5,652 p	7¼

The next Public Sale of Indian and Java Tea will be held on the 6th prox., and Ceylon Tea on the 7th prox.

Indian. The following is taken from the Official Wire of the Indian Tea Association :

TOTAL CROP.

Estimate 1898-9	lbs. 158,750,000
First Estimate 1897-8	lbs. 156.500,000
Actual crop 1897-8	lbs. 148,000,000

AVAILABLE FOR U.K.

Estimate 1898-9	lbs. 140.500,000
First Estimate 1897-8	lbs. 138 500,000
Actual shipment to U.K. 1897-8	lbs. 134,000,000

The small sale passed with good competitions, good liquoring Teas and Teas for price being specially firm.

Week's av. of Tea sold on Garden Account, 1898, 5,671 pkgs., av. 6·85d. 1897, 5,449 pkgs., av. 7d.

	1898. Pkgs.	1898. Price.	1897. Pkgs.	1897. Price.
Assam	1,227	8·41	—	—
Cachar & Sylhet	3,530	6·17	1,124	4¾
Chittagong	—	—	—	—
Chota Nagpore	—	—	—	—
Darjeeling	—	—	68	9⅛
Dooars	609	6·06	—	—
Kangra, &c.	—	—	69	7¾
Neilgherry	—	—	217	7
Terai	—	—	—	—
Travancore	305	6·38	710	6¼

Total sold on Garden Account 1st June to date 1898, 1,136,837 pkgs., av. 8·64d. 1897, 1,058,045 pkgs., av. 9d.

Bank Rate 3½ per cent. Exchange on London three months sight :—Calcutta 1/4⅛. Colombo 1/4⅛.

Messrs. Gow, Wilson and Stanton's Indian, Ceylon, and Java Tea Report, dated May 20th, 1898, says :—

QUANTITY BROUGHT TO AUCTION IN LONDON

FROM 1ST JUNE TO DATE.

	Indian.	Ceylon.	Java.
1897-1898.	1,566,395 pkgs.	1,150,783 pkgs.	42,375 pkgs.
1896-1897.	1,537,642 „	1,100,447 „	44,791 „

18.451 pkgs. Indian
20,928 „ Ceylon
— „ Java.
} Total 55,461 packages were offered in public auction this week.

The figures given below would at first sight appear to indicate a check in the consumption of British-grown Tea in North America; but they do not warrant such a supposition, because, as mentioned in our circular of the 26th March, 1897, the heavy import during the first quarter of that year was mainly caused by the fear of an alteration in the Tea Duty.

Almost all the increase which then occurred in Indian Tea was lost during the remaining three quarters, the total import for the year being 5,663,244 lbs., against 5,258,773 in 1896; the quantity of Ceylon Tea was 5,698,596 lbs., in 1897, and 4,364,510 lbs., in 1896, the increase in 1897 being mainly contributed during the first quarter.

Indian and Ceylon Tea taken in North America from 1st January to 31st March.

INDIAN.

	1898.	1897.	1896.	1895.
Re-exports from U. K. ...	605,950	851,746	318,245	432,461
Transhipments from U. K. ...	615,265	1,779,809	975,809	319.586
Direct Exports *viâ* China ...	50.601	71,023	*not stated.*	*not stated.*
Direct Exports from Calcutta.	74,000	*nil.*	*nil.*	*nil.*
Total lbs. ...	1,345,816	2,702,578	1,294,054	752,047

CEYLON.

	1898	1897	1896	1895.
Re-exports from U. K. ...	840,790	975,081	699,196	453,875
Transhipments from U. K. ...	432,360	682,515	317,120	188,919
Direct Exports *viâ* China ...	241,495	100,769	34,568	71.374
Direct Exports from Colombo.	294,638	*nil.*	*nil.*	*nil.*
Total lbs. ...	1,809,283	1,758,365	1,050,884	714,168

Indian. The quantities brought forward are now beginning to show considerable reductions while the market continues to maintain the steady tone previously noticed, although here and there some Calcutta bought Teas were withdrawn for higher limits. The official te gives exports to U. K. for the first half of May, as 697,000 lbs. 728,000 lbs., same period last year, and from the first of April inst. 1,107,000 lbs. against 1,089,000.

Week's av. of Tea sold on Garden Account, 1898, 5,972 p av. 7·28d. 1897, 5,449 pkgs., av. 7d.

	1898.		1897.		1st June to date 1897-8.		1st J date
	Pkgs.	Price.	Pkgs.	Price.	Pkgs.	Price.	Pkgs
Assam ...	2,051	8·93	601	10	534,231	9·87	508,8
Cachar & Sylhet...	3,228	6·81	4,365	6½	309,121	6·85	299,0
Chittagong ...	—	—	—	—	5,686	7·15	3,2
Chota Nagpore ...	—	—	11	6¾	1,920	5·08	2,0
Darjeeling ...	—	—	—	—	66,721	11·10	57,9
Dooars ...	533	7·15	—	—	144,545	7·44	129,5
Kangra, &c. ...	16	6	—	—	8,497	7·11	6,2
Neilgherry ...	—	—	37½c	7¼	6,522	6·91	4,4
Terai ...	—	—	—	—	20,016	7·19	13,3
Travancore ...	144	5·94	436	6	33,907	6·36	30,7

Total sold on Garden Account 1st June to date 1898, 1,130,69 av. 8·65d. 1897, 1,055,857 pkgs., av. 9d.

Bank Rate 4 per cent. Exchange on London three months s Calcutta 1/4 5/16. Colombo 1/4 5/16.

PUBLIC SALE OF SOUTH INDIAN TEA.

(AVERAGE FOR ALL INDIA 7·28*d.*) *May 20th.*

GARDEN.	Total.	Average.	Broken Org. Pek. or Flowery Pekoe.		Pekoe and Unassorted.		Broken Pekoe.		Rekoe Souchong.		Broken and Souchong.		Fannings, and Var	
	Quantity	Price.	Quantity	Price.	Quantity	Price.	Quantity	Price.	Quantity	Price.	Quantity	Price.	Quantity	
Travancore ...	**144 p**	**5·94**												
Chulika ...	54 p	5¼	...	...	9	5½	34½2	5¾	7	5	...	...	4	
Isfield T. Co. ...	90	6¼	...	...	34	6	28	7	28	5½	...	...	...	
South Wynaad ...														
Richmond ...	16	6	3	8½	3	6½	...	...	10	5	...	...	...	

(AVERAGE FOR ALL INDIA 6·85*d.*) *May 27th.*

GARDEN.	Total.	Average.	Broken Org. Pek. or Flowery Pekoe.		Pekoe and Unassorted.		Broken Pekoe.		Pekoe Souchong.		Broken and Souchong.		Fannings, and Var	
	Quantity	Price.	Quantity	Price.	Quantity	Price.	Quantity	Price.	Quantity	Price.	Quantity	Price.	Quantity	
Travancore ...	**305**	**6·38**												
Isfield T. Co. ...	49	5¾	...	...	24	6	...	...	25	5½	...	...	...	
Sth. Trav. Est. Ven.	146	6½	66	7¼7½	55	6	...	...	25	5¼	...	...	...	
Wallardie ...	110	6½	...	...	20	5¾	74	7	16	5¼	...	...	...	

PLANTING OPINION.

A WEEKLY JOURNAL

WRITTEN BY PLANTERS FOR PLANTERS.

. III.] COONOOR, SATURDAY, JUNE 25, 1898. [No. 25.

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BSCRIPTION.—Advance Rates: Yearly, Fifteen Rupees; Half-yearly Rupees; Quarterly, Five Rupees, and Monthly, Two Rupees, including ge. Single Copies, Eight Annas.

DVERTISEMENTS.—From the 1st October, 1897, the charge for dvertisements will be: 4 as. per line for the first, 3 as. for the second, as. for the third and succeeding insertions. Five-line advertisements Subscribers will be inserted for three issues for one rupee; non-Subrs will be charged two rupees.

OMESTIC OCCURRENCE.—The fee for inserting a domestic rence will be *One Rupee* for each insertion, payable in advance.

3.—Remittances should be sent to the Manager, "Planting Opinion," Second Line Beach, Madras.

IMPORTANT NOTICE.

ne Business Offices of this paper having now been ved to Madras, all remittances should be made pay- to the Manager of *Planting Opinion*, 11 and 12, nd Line Beach, Madras, who will also attend to all rtisements, &c.

tters to the Editor should be addressed to Coonoor, ual.

SEASON REPORTS.

TO OUR SEASON REPORTERS.

Please post your next reports to reach Madras on Friday, the 1st July, 1898.

Season Reports should be sent to the Printers, Messrs. Addison & Co., direct, and not to *Planting Opinion* Office.

Mysore.

Belur, 17*th June*.—Failure has been "awful" here and in Belur and Munzerabad, so we are in for another bad year. One place is over 400 acres, and where a man saw the blossom in April and estimated 60 tons, quite one-half has gone! Borer also is worse this year. There are dozens of small estates for sale.

Coorg.

Polli Betta, 22*nd June*.—*Weather*.—About 1·50 inches rain on 16th. Heavy again on Saturday, 18th. Dropped again to 70·50 cents. "Break" on since yesterday, only 10 cents rain. *Crop*.—Light rain and break good for small berries. *Labour*.—New labour dribbling in. *Works*.—As previously reported, except that a beginning has been made with planting. *General Health*.—Fair. Paddyfield cultivation commenced. Grains and gram especially dear.

Kadur.

Balur, 20*th June*.—*Weather*.—The S.-W. monsoon set in on the 6th, and has been doing fairly well, with an average of 3 inches a day. Very high winds, which has brought down many trees. *Crops*.—Estimates on blossom greatly reduced. Owing to the long drought, "failure" is general all over the district. Borer has made its appearance on many estates. After the very fine promise of a "bumper" crop, it is disheartening, and we have still another bad year. *Labour*.—Some estates well supplied for time of the year. Coolies from below ghaut are beginning to make an appearance in larger numbers. *General Health*.—Fever still prevalent, but on the whole health fairly good. *Interesting Items*.—A large landslip occurred on the Bhoon ghaut on the 12th, which will stop all traffic for some days. Thanks to Mr. Rice (our Engineer), the débris is being cleared rapidly. A murder took place on the Merthikhan estate, when the maistry did away with his wife and two children. Murders have been frequent of late, and it is to be hoped the Police in this case will bring about a conviction.

Nilgiris.

COONOOR, 22*nd June.—Weather.*—Though the high winds have ceased, the skies are still very cloudy, but there is no rain yet. The need of more rain at this time is getting a little urgent. *Crops.*—Coffee has set splendidly, but with the effects of the failure of last year's N.-E. monsoon still apparent, more moisture is wanted to prevent the young berries dropping off. Tea wants more rain badly and crops, in spite of the late favourable weather, are fearfully behindhand all over the Coonoor district. *Leaf-disease.*—Bug, black and brown (latter is miscalled "green"), is showing up rather badly again this year on coffee in some parts. *General Health.*—General health still indifferent. *Interesting Items.*—I hear that our famous railway will have a good deal of difficulty yet in opening a through service to Coonoor this year. Trains, of *sorts*, are up to Burliar, but the difficulty is in the engines not being powerful enough to push up a full train.

NELLAKOTTA, 21*st June.—Weather.*—The monsoon broke here on the afternoon of the 6th instant, since which date I have registered 15·58 inches, or an average daily fall of a little over an inch. We have had no big burst, I am glad to say; but steady continuous rain, spread over day and night. Heaviest fall in any 24 hours 1·94. Wash in consequence has been conspicuous by its absence, and the wind has been very light. Altogether a model monsoon. *Crops.*—Berries swelling fast. The majority of estates have excellent crops: perhaps not quite as good as the blossom promised, but still excellent. The tote next to mine has a regular bumper. On a few estates, I hear, crop has failed. *Plant-diseases.*—Coffee, both old and young, in splendid heart. I have seen a speck or two of leaf disease, but nothing to speak about. I trust we may get off as lightly in respect of this pest as we did last year. Borer rather bad in patches. *Health.*—Colds prevalent. *Labour.*—Kanarese, as usual, late in coming in.

NOTES.

The Florida Velvet Bean.

All planters who have followed the interesting developments of the "legume cult" will be interested in Captain Wilson's description of the Florida Velvet Bean, which we publish elsewhere. It is good for shade, for forage, for manure, and for mulch. The Nilgiri A.H. Society might do well to import some of this seed for experiment from John Shaw and Sons, Great Maze Pond, Borough.

Vines *vs.* Coffee.

In the hope of making up the loss Brazil has sustained through the fall in the value of coffee, Dr. Barrets, a well-known agriculturist, has long been urging the cultivation of the grape, 600 varieties of which from all parts of the world he has been experimenting with upon his own estate in the San Paolo province. At a recent exhibition he had on view 300 varieties, and in most cases the products were superior to those of the parent country, both with respect to table fruit and that more suitable to the wine-press. Dr. Barrets evidently believes it better to get a new steed than to try flogging one lacking in quality.

The Currency Question.

The I. T. C. did not tackle this question with much zeal or zest, but it seems to have formulated an opinion at last. According to a telegram published in the *Madras Times* of 22nd instant:—

The General Committee of the Indian Tea Association have adopted the following resolutions:—That a gold standard is not needed in India, even if it be practicable to establish it; that the cost of establishing it (with or without gold currency) is prohibitive; and that an undue proportion of such cost will fall upon th growers; that, in the opinion of the Committee, the Indian Cur Committee should be directed to enquire into the question of h re-open the mints to the free coinage of silver with the least venience to the trade of the country.

Tea-pruning extraordinary.

An Upper India planter, "18 hailing, we believe, from the par larly distressed district of C Nagpore, has been giving Ceylon planters some extra nary ideas of his on pruning. To put it briefly, he holds by his improved method, an average estate should tur 1,600lbs. of made tea per acre! As the Indian and C averages are respectively 400 and 300 pounds per acre absurdity of the idea is patent. Friend "1874" a ye two ago was a very frequent and voluminous contribut planting periodicals, and from what we remember o quality of his writings, he seems to be now quite kee up to his old reputation.

A Correction.

We have had frequent occ to print extracts from that interesting journal, *Indian Gardening*, but much r that in a late issue we should have failed to acknowl the source of a report on the Government Gardens o North-West Provinces (which the printer's devil quot coming from the *Indian Government*) and an article o waste of fruit seeds. We publish this correction wi the more readiness because we have ourselves so frequ suffered the same annoyance from the hands of journals. Another extract or two will be found in this from *Indian Gardening*, to which we wish long life a long list of extractable articles. May its pages bro and its subscribers increase.

Ceylon tea-extensions.

In October 1895 the area of under tea in Ceylon was 30 acres, a large enough quantity in sooth. Yet in th two years planting was pushed on so rapidly that the pr area is close upon 370,000 acres, a huge increase. rally, the prospects of a permanently high exchange certainty of prices falling even lower than they now are practically stopped further extensions, as is the case in U India. The moral of these figures, according to the *C Observer*, is that North and South India should both gently refrain from planting up any more tea.

Unless the present conditions alter a great deal fo better, it is certain that a yearly increasing proporti poor tea land must be annually abandoned.

Mysore notes.

A Balur correspondent, writi the 15th instant, wishes we write something about the inefficiency of the local p On receipt of detailed notes we shall be glad to do so. writes: "You know that they (coolies from South Ca dug up McMaster's grave at Sumpsi in hopes of ge treasure, and the police never took the trouble to fin who did it. This grave-opening has been done once b in Koppa, where General Leslie's body was exhumed coolies, led by the cook, dug the grave open and were l by the Amildar for want of evidence. There has been a landslip on the Bhoon ghaut, seven miles from Kotag which has completely stopped all traffic from Mang Mr. Rice, the Engineer, is on the spot, and, working with 60 coolies, hopes to open the road in a

mite has been telegraphed for, as large rocks have come from the 'Jamkull' hill."

In the proceedings of the Coorg P.A. Annual General Meeting held e 31st May, which we publish in full elsewhere, will ınd many points of interest. It is satisfactory to hat though last year's crops, say 3,000 tons, were not ge as in 1895-96 (3,650 tons), yet they were consider- above those of 1896-97 (1,593 tons). Prospects for ear are considerably brighter, we are glad to see. interest is being felt in the opening of the first tea of any size in Coorg. It seems a pity, though, that er departure than tea was not tried instead, as pros- are the reverse of promising just now for tea gene- It is a pleasure to note that the importance of ving the local strains of coffee is at last being recog- This is a point on which we have dwelt times ıt number. The reputed area of coffee is now esti- at 109,385 acres, an apparent increase—due to te survey—of nearly 25,000 acres. One-third is by Europeans and the remainder by Natives. In- l, however, in the native coffee are large acres of oned cultivation, so that perfectly accurate statistics till to be prepared. Coffee assessment brought in 1½ an increase of 18,000 odd rupees over last year. disastrous effects of the restricted currency and high nge are forcibly dwelt on, and the utmost economy is to keep the industry on a profitable basis.

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r to planters.

In his issue of the 3rd instant, the Editor of the *Produce World* draws tention of his readers to his offer to procure for rs and others specimens of plants, seeds, &c. We so add, writes our contemporary, that when any of aders or their friends come across products, especially l products, which they think may become commercial odities, we shall be glad to place at their disposal all sources for ascertaining not only their utility, but e chances and means of developing them and making rofitable. In several instances we have been enabled a remunerative market for previously little-known s, while we have frequent enquiries for information ning new products, and despatch specimen plants eds to all parts of the world by nearly every mail. We request, however, as there is occasionally difficulty aining some descriptions of plants and seeds, that our pondents should forward their enquiries as long before ctually required them as possible, in order to avoid g seasons and having goods rendered worthless on . All specimens are despatched by the earliest unity, but, while we do our utmost to meet require- we cannot guarantee the safe arrival of any special y under present shipping laws.

may add that the paper, being run by Messrs. John n & Co., is particularly capable of affording very le assistance in the manner indicated.

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oranges in on.

Some four to five years ago several consignments of oranges, says the *Produce World*, were sent to London Central India, and arriving out of the usual season there, many realised as high as threepence each. Unfortunately, the consignment had to be shipped as ordinary cargo, and even then there was difficulty in inducing shipping companies to accept freight, consequently much of the fruit was bad on arrival. The writer of notes on "Indian Fields and Farmers" in the *Madras Times* had some interesting remarks lately on this very subject. He suggested that the difficulties inseparable from the initiation of any trade might well be met by Government. Of course planters would in time reap a substantial part of the benefits of the fruit trade, but it is the Indian ryot who will for many years be most keenly interested in the matter.

It is interesting to note here what the rates of freight are for fruit from the Cape and from Australia. From the former colony a ton of fruit is charged £3-10*s.*, while from Australia, which is double the distance, only £4-5*s.* are charged to London. To intending shippers it will be useful to bear in mind, in the words of the Cape of Good Hope *Agricultural Assistant*, that "no one knows better than the Covent Garden Salesman that, to a large extent, it is the box that sells the goods, and the first fruit in the world would be heavily discounted by being presented in shabby second-hand surroundings.

Mr. Kelway Bamber.

This gentleman, so well-known to all tea-planters of India and Ceylon from his noteworthy book on tea, has now returned to the East to see if his services cannot be of further use in these depressed times. Undoubtedly the problem which calls most urgently for solution is the question of the scientific manufacture of tea. Not that we incline to the belief that chemistry in the factory alone will be of great assistance. Its work lies afield as well; strength, flavour and pungency must be traced from cup to factory, from factory to bush, from bush to soil, and thence back again. Mr. Bamber was lately in Ceylon and has been giving his opinions, very guardedly, on the alleged deterioration of the local tea to the *Ceylon Times*. "Absolute deterioration in the quality of tea may arise, apparently, from gradually increasing poverty of the soil, or from methods of manufacture unsuited to bring out the best qualities of the tea. And we are glad to find that Mr. Bamber does not believe that the most careful analysis, or series of analyses, will suffice to give us much valuable information on the subject we are trying to elucidate. Without practical experiment with the mechanical processes of tea manufacture, carried on hand in hand with scientific

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COFFEE SHADE TREE.

Sun-dried Erythrina Lithosperma loppings, &c., contain per ton:—

61·50	lbs.	Nitrogen.
57·38	„	Potash.
14·92	„	Lime.
13·68	„	Phosphoric Acid.

Seed cured under Messrs. Sutton and Sons' advice.

Orders should be booked early for the 1898-1899 crop of seed from the parent trees of above analysis at Rs.6 per pound containing about 2,000 seeds. *Germination guaranteed.*

Only thornless variety extant, and is not procurable anywhere save from the

MANAGER, ARIENKOW ESTATE,
Shencottah.

tests, little can, in Mr. Bamber's opinion, be done, and he desires to work with men who will come with him and personally go through all the processes in order that the work may be carried on in a practical, as well as in a scientific, way. Such work as that is certain to lead to good result, and we can only hope that the Thirty Committee will see their way to engage Mr. Bamber's services in the same way as was done in India, where a substantial retaining fee was given him by the Tea Association and a certain definite scale of charges was drawn up which he was authorised to charge to different estates for analyses of soils, and teas, and work in the factory. Such a system as this will allow of Mr. Bamber's services being secured at a minimum cost to all who wish to consult him, and to take advantage of the presence amongst us of one who is quite at the head of his profession at home, and has already given many years' study to the chemistry and scientific manufacture of tea."

London Market.

Coffee.—The position of the market is thus shown by the *Produce Markets Review* of the 28th ultimo :—

LONDON COFFEE RETURNS.

—	HOME CONSUMPTION.		EXPORT.		STOCK.	
	1898	1897	1898	1897	1898	1897
For the week ended May 21, 1898.	Tons. 269	Tons. 356	Tons. 717	Tons. 790	Tons. 15,969	Tons. 14,245
For the 20 weeks ended May 21, 1898.	6,157	5,923	10,189	7,603	—	—

Indian Teas.—The quantity offered has been smaller but sufficient to meet the somewhat slow demand. Prices have been steady for the lower descriptions, which formed the bulk of the supply, and a smaller quantity was withdrawn than has lately been the case. Teas for price meet with a good inquiry, but the supply under 5¼*d.* with useful liquor is in a very limited compass. Medium sorts have scarcely changed in value, the bulk of the offerings showing but moderate quality in cup and comparing unfavourably with similar grades offered some time ago; consequently the trade have not been eager buyers excepting for actual requirements. The fine and finest kinds continue extremely scarce, and the few parcels brought forward were keenly bid for, in most cases at enhanced rates. The reports of the new crop are on the whole favourable, and it is generally expected that the quality of the teas from most districts will show an improvement on those of last year. The estimated outturn is put at 158,500,000 lbs., of which 140,500,000 lbs. will probably be available for this market, against an actual outturn of 148,250,000 lbs. last season, the latter being about 8,000,000 lbs. below the early estimate, and 133,750,000 lbs. were sent here. Public sales were resumed in Calcutta on the 20th inst., when 8,000 packages were offered, and the quality of some of the teas is reported to be good, for which firm prices were paid, but the common kinds sold at easy rates. At the public sales 16,307 packages were brought forward, of which 13,756 were sold. The next auction will not be held until M day, 6th June.

Formosa camphor.

According to a report of I Consul at Tainan, writes an change, the camphor export for the year 1896 was 8 boxes, which is a decrease of 2,144 boxes from the ex of preceding year, and of 4,156 from that of 1894. trade from January to April was most remunerative, o to the high prices ruling in Hong Kong. Then the Ja ese authorities, by the issue of regulations affecting production and sale of camphor, and by the arbitrary a of foreign compradores and the confiscation of their phor in the interior, so seriously interfered with the tions existing between foreigners, their compradores the camphor workers, that by June business was pr cally brought to a standstill. Repeated remonstra from the Consular body had the effect of partly allevi the situation, but before confidence was fully restor rebellion broke out in and around the camphor dist and put a stop for several months to all further busi During this time most of the camphor stills, which we erected by foreign capital, were deserted by the cam workers, to whom advances had been made for the chase of camphor trees and the manufacture of cam for the account of foreigners, the latter thus suff heavy losses. When order was somewhat restored, the large quantities of camphor which had been lying up country for several months could be transported t coast, prices in Hong Kong had fallen 70 per cent., did not improve for the remainder of the year.

The regulations above referred to, and others s quently issued, if allowed to remain in force, will the effect of gradually excluding foreigners from a ness which they originated, and of which they before the Japanese occupation of the island, practica monopoly. Lately, however, the Japanese Govern have agreed that the camphor business is to be carrie by foreigners under the same conditions as formerly the new treaties come into force. It is to be presu therefore, that any Japanese regulations restrictive o trade will be put in abeyance this year, and that the officials will be instructed accordingly. There would be a prospect of the trade reviving and assuming proportions; but the outlook at present is not at al assuring.

LETTERS TO THE EDITOR.

RECIPE FOR LIME JUICE.

SIR,—The following will be found a good recipe for ma "lime juice" to keep. Squeeze the limes, strain the juic put it into a clean-lined saucepan. Bring the liquid t boiling point, put into bottles quite dry inside, but made h placing them in hot water or in the oven. Cork tightly new corks, then dip the ends of the bottles in melted res exclude all air, and keep in a dark dry place. The l should reach up to the corks.

To every pound of sugar add 12 fluid ounces of lime add a few drops of essence of lemon, and dissolve with th of heat, 1 oz. of the syrup to a tumbler of aërated water. very strongly recommend the fruit crystals which ma

t for annas 7 per packet, in lemon, raspberry, orange, ople and lime juice flavours and are so easy to make.
ce the contents of one bottle in a jug with 1 lb. loaf Pour over the whole one pint of boiling water. Stir till ved, when it is ready for use. Use a tablespoonful or two syrup to a tumbler of water.

A Planter's Wife.

TEMPERATURE OF TEA DRIERS.

AR SIR,—I see "Tea Drier" in your issue of 4th June has into the natural error of considering one substance hotter another, merely because it feels so, disregarding the fact most metals are much better conductors of heat than air; lone making the wire mesh feel much hotter to the touch the air surrounding it. In natural up-draft siroccos, the rrounding the trays, and also the trays themselves would ler than the air surrounding the thermometer (where it is ly fixed) being further from the source of heat.

a is liable to bake or burn at any temperature above f left sufficiently long.

e true theory of the burning of tea in dryers is that the erature of the roll while sufficiently wet rises very little 212° F., the vapourising point of water, but as the drying completion rises rapidly towards the temperature of the hot assing through it (say 240° to 306 F.), and if the dried tea t long enough, it will certainly burn in either of these eratures.

is is provided for in Messrs. Davidson's later type down s, and in their new Auto-Sirocco, in which the wet roll is cted immediately to the hot dry air, while the nearly ed tea passes through a much reduced temperature.

Heat.

GENERAL ARTICLES.

TEA PESTS AND BLIGHTS.

(*Continued from page* 250.)

Fertilisers. The interesting chapter under this heading has been supplied by David Hooper, Curator of the Indian Museum, Calcutta. Hooper achieved a substantial and well-deserved tation while in South India for the careful way he stigated economic questions presented him. Our ex- ations of finding a well-written and suggestive chapter not disappointed. Mr. Hooper holds to the full Watt's well-established theory that predisposing con- ns to disease in imperfect methods of cultivation call nvestigation more urgently than any so-called cures he diseases themselves. More especially with regard eficient or unsuitable food supplies.

is unavoidable that the chapter partakes closely of the re of the book itself, *i.e.*, is not authoritative, but only gestive. As an introduction it is worthy of praise. as with the rest of the book, much investigation and ful work is needed before planters can turn to it for rence. With special reference to the health of the tree, Hooper lays great stress on the important effect that ogen has in keeping off blights by maintaining the t in full vigour. Green manuring is advised wherever cticable, and some interesting matter relating to soil ification and the absorption of nitrogen by leguminous plants. In fact, the conclusion to which the whole chapter leads to is that sufficient nitrogen under ordinary favourable circumstances has an enormous effect in warding off the attacks of blights and other pests. We are given the formula of what may be called a normal manure for tea, that is, a complete manure. In most soils, some at least of the constituents would not be needed and, with soil analysis to guide one, should be omitted. The following is the formula:—

Mineral phosphate (containing 60% of tricalcic phosphate)	50	Lime ...	... 16
		Phos. Acid	... 14
Saltpetre (95%)	... 30	Potash ...	.. 13·3
		Nitrogen (in nitrate)	3·9
Ashes (of wood or plants)	... 20	Potash ...	... 2
		Phos. Acid	... 1
		Lime ...	... 1

A manure of this description, says Mr. Hooper, could be easily prepared in India. A natural phosphate of the above description is afforded by the deposits of nodules near Trichinopoly. If mineral phosphate is not procurable in Northern India, bone dust, an article which would supply additional nitrogen or ammonia, might be substituted. If more nitrogen is required, the ashes might be replaced by one of the many oil-cakes obtainable at a cheap rate wherever oil-seeds are cultivated and pressed.

Conclusion. In reviewing our previous notices on Tea Pests and Blights, we are led to the following conclusions. That, while some of the serious enemies of tea may be found even in perfectly healthy tea, in the majority of cases, the plant only suffers when it is in an unhealthy state. Unhealthy stock must give unhealthy progeny, and there is no doubt that in tea, as in coffee, an alarming proportion of the unhealthiness of the plant is due to heredity. There is only one way of combating this evil, *i.e.*, to gradually improve our seed-suppliers by the most careful selection and cultivation. That is a problem for the immediate future. Apart from the complex question of heredity, a great deal of the debility of the plant can be directly traced to faulty methods of pruning, cultivation, draining, manuring and plucking,—grave faults of both omission and commission. These faults can be remedied by an improved system of working, not necessarily entailing any additional expenditure. Cultivation, as we have pointed out in one of our preceding articles, is nothing more than keeping the pores of the surface and subsoil open to the influences of rain and air. It is intimately connected with subsoil drainage, for surface catch drains are apt to have most harmful effects, being based on an entirely erroneous principle. To keep his tea healthy, the planter must subsoil drain his land in the best manner he can. Subsequently, by cultivation frequent and deep enough to satisfy the conditions of the soil and climate, he must, aided by judicious manuring, not only keep up but increase the fertility of his soil. In pruning he should endeavour to form the shape of his bush at the earliest possible stage, beginning even in the nursery. For the earlier the desired shape is attained, the less shock there will be to the tree, and the less waste of its vital forces. When through age or neglect his plants no longer respond to a medium prune, let him cast aside his fears and stump them below the surface of the soil. All new shoots will be able to provide their own roots, and thus in time will form entirely new plants.

With his plants in a thoroughly healthy state, he will find that the need for insecticides will be almost infinitesimal. But he should not neglect the attacks of blights, however well his tea is growing. It is a sign that all is not well. It must first of all be rigorously suppressed by powerful insecticides, or even fire if necessary. Next comes the question of discovering and correcting the causes of the attack. Eternal vigilance, great powers of observation and a ready intellect are needed to successfully wage the war against pests and blights.

PARA AND AMAZONIAN RUBBER.

IT is stated in a Foreign Office report from Her Majesty's Consul at Para that the total amount of Amazonian rubber exported from Para, Manaos, Bolivia, and Peru during the twelve months ended June 30, 1897, was 22,216 tons, of which 12,368 tons were sent to Europe and 9,848 to the United States. The Amazonian crop during the same period amounted to 22,315 tons, of which 9,100 tons belonged to the State of Para. The amount of Amazonian rubber exported during the year ended Dec. 31,1896, was 21,597 tons, of which 12,542 tons were sent to Europe (10,637 to the United Kingdom and 1,905 to France) and 9,055 to the United States, while the amount of Amazonian rubber exported in 1897 (Jan. 1 to Dec. 15) was 20,554 tons, of which only 9,726 tons went to Europe and 10,828 tons to the United States.

The value of the rubber exports from Para during the year 1896-97 was £1,977,596, and the duties collected on this value amounted to £415,295.

All the trade between States watered by the Amazon (*i.e.*, Para, Amazonas, Peru, and Bolivia) and the United States is transported in British bottoms; and all the rubber purchased by the United States is paid for through British banks, of which there are three established in Para. A British company—the Amazon Steam Navigation Company of London—possess 35 steamers for the navigation of the river Amazon. Over 100 river steamers belong to Para. Most of them were made in England, and merchants in Para, Manaos, and Iquitos are continually purchasing others from the same source. Purchases have been made also in the United States, France, and Germany, but the British article is found to be superior

Rubber of the best quality is produced throughout the continent watered by the Amazon between Para and the Andes mountains of Peru, and the majority of authorities on the subject are of opinion that there is absolutely no fear for the exhaustion of the supply of rubber in the Amazonian States. Distance and rapids are not insurmountable obstacles, for in some cases this produce is transported as much as 6,000 miles before it reaches Para; and, when rapids impede the way, canoes and their cargoes are hoisted out of the water and rolled along the banks, sometimes for several miles, until navigable water is reached. This causes much delay and additional expense, but it is found in the end that distance and prolonged transportation have improved the rubber, so that when it arrives at its destination it sells for higher prices than that collected nearer the mouth of the river.—*Journal of the Society of Arts.*

COOL DRINKS.

"G. C. M." writes to the *Pioneer*:—I have recently been making a number of experiments regarding cooling mixtures with the following results:—The most effective mixture for its cost is, one part of saltpetre (naushadas) and three parts of sal-ammoniac (shora). Pound the crystals fairly fine, mix them together, and add one part (by measure) of the mixture to two parts (by measure) of water. For cooling bottles I use a number of earthenware *chulas*, packed round with sand, in a wooden box. Each *chula* is just big enough to hold a bottle, with about half-an-inch space all round. For measuring I use an empty tobacco tin. About four or five tins full of water suffices, into which I put two tins full of the mixed salts. The mixture should be well stirred first, then the bottle is put in, and is occasionally taken out and well shaken. The liquid inside the bottle reaches its coldest point in from half to three-quarters of an hour. I find I use about half a seer of the salts for each bottle. As the price of the mixture is about six annas a seer, this would be expensive, were it not for the fact that the whole of the salts can be recovered by evaporating the "brine" in shallow pans. While in camp I take with me two large, strongly made block tin cans, each holding about 5 gallons in which I put the brine, to be evaporated when I return to headquarters. For evaporating pans I am at present using trays made of tin placed in wooden trays. I find, however, that the tins get rusty after a while and make the salts black. Shallow earthenware pans would be better. In the hot weather about one quarter of an inch to half an inch depth can be evaporated during the day. During the rains this depth will have to be reduced. The brine should be carefully strained before being put in the pans. It will be found when cooling a bottle that the heat from the bottle soon "warms up" the surrounding brine. If after a while the bottle is removed and put into a fresh solution, several degrees of "cooling" will be gained. The greatest reduction of temperature I have reached with this mixture is from 86° to 61°, but this was *without* a bottle in the *chula*. With a bottle in the *chula* the greatest reduction of temperature of the brine was from 80° to 63° and of the liquid inside the bottle from 80° to 68°, this point being reached after 35 minutes. There is no advantage to be gained by increasing the proportion of salts to water beyond 1 to 2. It is better to cool the bottle twice, if it is wanted extra cold, using *fresh* water for the second cooling. Of course the coldest water obtainable should be used, and the bottles should first be cooled, either in a swinging basket, or in a *gumlah* placed behind a *kus-kus tatti*, or in any other convenient way. As a little carelessness may result in the loss of a lot of salts, I find it advisable to give the servants a small sum per seer of salts recovered.

THE FLORIDA VELVET BEAN.

THE following letter has been addressed by Captain E. A. Wilson, Orlando, Florida, to the *Spectator*:—

TO THE EDITOR OF THE "SPECTATOR."

SIR,—I send you herewith a sample of the new Florida product,—the wonderful velvet bean. Up to two years ago it was grown here in a limited way, mainly as a trellis shade, but afterwards it became recognised as invaluable for all kinds of stock as a forage, and a phenomenal fertiliser for orange and other fruit trees, and for the soil as well, until it is now grown in large quantities. There is nothing yet discovered that is, all in all, so valuable a crop as this for farmers to raise. It being an air plant, it would do well in most any kind of soil, in any of the States, north or south, that will grow corn, and no fertilising is necessary. The forage—the foliage, and vine—coming from this bean is a marvel and a wonder. Planting in rows 4ft. apart will produce a solid mass of vine and foliage, up to your waist in height, covering the ground completely, and yielding leaf, vine, and fruit, aggregating four to five tons to the acre, and of dry beans twenty to thirty bushels. Beside the vine being a valuable fertiliser, forage, mulch, and shade, the question will be asked, "Is it also prolific in fruit?" The answer is "Yes, emphatically so." From the hill the vines run out in all directions, like the water melon, 10ft. to 20ft. It commences to fruit at the hill in clusters like the raisin grape, thence along the entire length of the vines at intervals of 10in. to 20in. pods in clusters of from two to twenty appear. Therefore the fruitage must be immense. For twenty years this bean has had a home in Florida, and has been known among the people as "the climber." In good rich soil it will climb 50ft. to 60ft., blooming and fruiting all the way up,—a most beautiful and lovely sight to look upon. To drill an acre will take sixteen quarts of seed; to plant an acre in rows 4ft. apart each way about twelve quarts. In good soil this acre will produce four to five tons of green forage, and fifteen to seventeen hundred pounds of beans. I speak from practical knowledge, as I have recently harvested nineteen acres of as fine a crop as ever grew.

Plant seed in spring the same time as you do corn, and cultivate and treat in same way, until vine begins to fill the row, then lay by for the season. When bean is ripe in the fall pick it, then turn mass of dry leaf and vine under for fertiliser, and from this your soil is immensely benefited. It is a good idea to drill or plant corn right in with bean seed as a partial support to vine, to keep pods off the ground. You can turn stock into bean field if you wish, or cut vines up at hill and carry out to stock, latter being advisable. If

planted in orange grove or orchard, keep 5ft. or more away from trees, as vine is a rampart grower and climber, and will cause you bother. Experience has shown that it is better to drill than to plant in hills, as by drilling you get a better stand on the ground, and that is important. The beans ground up, hulls and all make a fine fertiliser for pineapple, orange and other fruit trees, as well as for all vegetable growth. Stock of all kinds like it, as well as the green forage early in the season, and all do specially well on it. Every living thing on the farm will eat the green forage and dry bean with greediness. The dry bean is also fit for table use. The question is often asked if this newcomer—the Florida velvet bean—will do well in any other section of our country except Florida. I answer by saying there is no earthly reason why it will not, as it is not tropical, and will do well wherever corn will grow. After having made a thorough test of it, I have come to the conclusion that, as a fertiliser, forage feed, mulch, shade, a prolific bearer of fruft, an up-builder of the soil, this bean has no rival. As a porch and trellis shade, with its beautiful dark-green foliage, and its long, pendant, down-hanging purple bloom, it is truly lovely. The analysis of this bean shows:— Nitrogen, 54 per cent.; crude protein, 19; fat, 6; fibre, 8; moisture, 12.

Orlando, Florida. Captain E. A. Wilson.

P.S.—If you desire to say, for the benefit and information of your readers, that this seed may be obtained in your city of John Shaw and Sons, 5, Great Maze Pond, Borough, you are at liberty to do so.—*The Produce World.*

WHY NOT A BULB FARM AT COONOOR?

From what I had seen of Coonoor, in the Neilgherries, writes Dr. Bonavia to *Indian Gardening*, I should say that a bulb farm there would be a great success. I saw hedges of Heliotrope; Camellias growing in the open; Richardias in the water courses, and many other things which prove that the climate and soil would be suitable to a bulb farm.

There is one curious phenomenon connected with commercial bulbs. In Japan there is a company which grows bulbs for the European market, mainly lily bulbs. I have purchased enormous ones of *Lilium auratum* at an astonishingly low price, and the importer had to make some profit out of them. But the curious thing is that Japanese lily bulbs go to England, and then back to India! Why cannot a trade be started of such things from Japan to India *direct*, instead of getting them from England by a sort of "reflex" action?

Lilies are among the hardiest things. Here, in England, they can be planted, and never again touched. Year after year they reappear above ground at the proper season, and flower in due course. There are many parts of India where they could be similarly grown. In all the hill stations, and probably in the plains also, they would find a suitable home. There is nothing finer in the way of flowers than lilies of about a hundred varieties.

Well, a bulb farm in Coonoor ought to prove a success, not only horticulturally, but also financially. There are so many improved bulbs of various kinds which might be grown in such a charming climate as that of Coonoor. To mention a few. There are all the splendid Narcissi, of which I have recently been enjoying a fine exhibition at the meeting of the Royal Horticultural Society. Some of them are astonishingly beautiful, such as the "Empress," the "Emperor," "Sir Watkin," the "Glory of Leyden," "Maximus" and many others. But that is not all, for many other splendours are on the horizon, and in a short time these new Narcissi will come into commerce.

Why should not Hyacinth bulbs be grown at Coonoor on a commercial scale, just as in Holland? They seed profusely, and new varieties can be raised from seeds. The fine named sorts can be raised from offsets.

Then there are the famous Amaryllis bulbs of Lucknow (Hippeastrums). Mr. Ridley, of the Government Horticultural Garden of Lucknow, could supply a cartload of these astonishingly beautiful things such as no lilies could match for splendour of colour. They are as easily grown as onions. Natives would never initiate such a bulb farm anywhere: the undertaking must be done by a European.

Many a retired officer passes the rest of his days on the Neilgherries; and let me tell you that he must be an unwise person, not to say a fool, who would care to exchange the climate and beauties of the Neilgherries for the nonsensialities of the London theatres and music halls, with a good seasoning of thick yellow fogs!

Well, a retired officer with a turn for horticulture and with a power of observation, and the knack of profiting by what he observes, might do worse than start a bulb farm in Coonoor. From small beginnings the creation of the plants and animals of this world has come about; and so may a bulb farm in Coonoor be created from small beginnings. Usually a retired officer in an Indian hill station ends his days twirling his fingers and reading papers at his club—a very foolish occupation for the end of one's days. Here is an opening for some enterprising retired officer, who has still some life in him. If he succeeded in making a good thing of this opening and fascinating occupation, he might bequeath a fine property and business to his sons, if he had any. Every one with capital there rushes into *tea*, to spoil his own market, and that of every one else. Here is a novel thing. If it succeeded, the whole of India might be supplied with bulbs, besides Ceylon, Burma, the Straits, and many other places.

Many of these fascinating bulbs can be cultivated, and new ones raised as easily as common onions. The great fascination of modern horticulture is the crossing of species and varieties for the production of *new* creations, which no man's eye had ever seen before.

I think the idea of a bulb farm in Coonoor offers not only a charming out-door occupation, but probaly may turn out to be also a profitable occupation. Knowledge of the plants—which may be *learnt*—perseverance, and a little capital, are the only requisites to begin with, in addition to the enchanting climate and soil of Coonoor.

NEGLECTED INDIAN PRODUCTS.

An interesting article has recently appeared in the Calcutta weekly *Capital* on the concentration of industries in British India and the openings for capital which present themselves in that country.

Speaking first of the production of lac, the writer is of opinion that a well-managed farm for the purpose affords as good and safe an investment for capital as any the country can offer. It is said to have failed when attempted in Cachar, but that was simply from the person who undertook the business being unacquainted with the habits of the insect, and placing his nucleus out in the full blaze of the sun, whereas it is only found in the densest forest undergrowth.

Again, take the item of beeswax. The southern face of the mid-mountain range teems with hives; and in many villages artificial ones may be seen. Yet no European has turned his attention to the important industry of apiculture, though no more eligible site than the orange groves could be had, the blossoms of that fruit in March and April affording perhaps the most suitable food for the many million of insects that are encountered. Although there is but little doing in the wholesale trade, the price of the comb, as brought in by the people, has risen within the last decade from 2a to 6a per seer, and allowing 25 per cent. for honey and impurities, there results in a difference between the rs 20 for the 70 seers that will make up the cwt., and £7 to £8 the latest quotation in London for Zanzibar wax which the Assam article resembles.

As to the trade in cocoons, it has of late been permitted to fall entirely into the hands of natives, and yet so plentiful are cocoons in the jungles that the bringing up of the worms in a domestic manner admits of no difficulty. In purchasing these from the hillmen one has to undergo considerable trouble and annoyance, for no amount of persuasion or invective will induce them to keep the different varieties separate, though latterly the Meekies seem inclined to come to reason in this particular, but the other tribes argue that silk is silk, and will not or cannot understand why one cocoon is not as good as another. The consequence is that a good deal of trouble has to be spent upon sorting, which would not be the case were each variety brought up on plants they affect and kept separate; and the laying down of such area as might be required in castor, soom slips, and other plants would prove a very trifling matter, while the necessary cultivation would be limited to merely cutting down the weeds now and again.

Of fibres, generally, so much has been written, that to enter into

details concerning them would be superfluous; all the slopes of the hills furnish the aloes variety in abundance, while there are long stretches in the plains available for the grass. The oil-producing plants such as castor, chalmoogra, and croton are equally valuable, whether considered solely as such, or for their cake. It is becoming more and more apparent that the older tea-plantations need renovation of soil; not that there is any falling off in yield, but in quality.

With the exception of mustard and linseed, the oil trade in N.E. India has been unaccountably neglected. Yet in no part of the country do the plants mentioned above grow more luxuriantly or yield more abundantly, and were local mills established to which the seed could be passed in a fresh condition, the oil obtained would be of better quality than that expressed from seed sent down to town which not only loses in weight, but is subjected to the risk of sweating on the journey. Public attention has been so fixed upon tea, that other important matters have remained unheeded; and the day may come when planters will become aware that only the finer sorts of tea will find a remunerative market. Hence it is well that other industries should be taken in hand.

There are so many jungle products that could be brought into plantations and concentrated that it would take up too much space to enumerate them. But ginger, turmeric, or anise could be raised in any quantity. Attention is continually being drawn to new uses to which Indian fruits can be put, and among others is that of plantain flour. This not long since formed an important industry in Jamaica, and an analysis showed it to contain certain properties as valuable as the infants and invalids' foods now turned out in such large quantities. Cassava flour again, so rich in starchy matter, ought not to be passed over.—*The Produce World.*

THE USES OF WOOD.

By FILIBERT ROTH,

Expert in Timber Physics, Division of Forestry, U. S. Department of Agriculture.

GENERAL REMARKS.

WOOD, like soil, air and water, has until recent times been one of those materials which man could obtain without effort beyond the mere taking. Hence, although it has become one of the most important, most generally used, and to our civilization most indispensable products of nature, our attitude toward its production has been one of indifference. Wood has been used so generally that a large amount of empirical knowledge regarding its properties has accumulated. This knowledge has sufficed for immediate purposes, and the need of a more intimate knowledge gained by investigation and experiment in regard to the properties and characteristics of wood has never become very apparent. Abundance and cheapness, together with ignorance of its true merits, have led to a most extravagant and often erroneous use of this product. We have witnessed with indifference, also, the useless destruction of enormous quantities of timber in the vague belief, characteristic of the times, that when the supply is gone some substitute will be found. That this belief is poorly founded is quite apparent, for while such substitution as, for instance, that of iron in ship, bridge, and track construction has taken place, and undoubtedly will continue and even increase in many directions, it has not prevented, even in countries like England, where wood is dear, an increased consumption per capita of population, while Germany, with all its well-managed forests, imports great quantities of large sized timber. Moreover, as we learn to know the properties of this material, we find that it is capable of many uses for which it was supposed the metals alone were fit; wood is to-day displacing the best qualities of steel even in such delicately balanced structures as the bicycle. That this return to wood in many of our manufactures will continue, in spite of the cheapness of iron and steel, there is not the slightest reason for doubt, and the importance of wood as a material of construction, to say nothing of its use as pulp, cellulose, and its derivatives, and its growing value as a fuel, will steadily increase and not decrease, as is so commonly assum and taught.

Before entering into the discussion of the uses of different kin of wood, and the reasons for their selection, it may be well to revi the principal useful qualities of this material, and to some exte compare it with its most natural substitutes.

WOOD AS COMPARED WITH IRON.

1. Wood is a natural product; iron the product of a costly, co plicated manufacture. Wood may be grown wherever man wishes use it; the manufacture of iron is practically confined to particu localities. The mines of both iron and coal are exhaustible; t forest, under proper management, produces for ever.

2. Wood is cheap; metals are dear. Even in the form of lumb and with the cost of long-distance transportation added, wood co the consumer in this country rarely more than 25 cents per cu foot, while iron in bars and sheets is worth at wholesale from $5 $10 per cubic foot.

3. Wood is soft; simple tools and small effort suffice to shape Iron is hard, any change of form, whether by casting, rolling, sawin cutting, planing, turning, filing, boring or grinding, requires mu labour, or else complicated and costly processes and equipments. the ease and rapidity with which wood can be shaped, reshaped, a combined in structures, it excels all other materials.

4. Wood cleaves or splits; metals do not. While this proper has its disadvantages, it is one that in some directions determin the usefulness of wood. It permits ready preparation for fenci and firewood, which latter use exceeds in bulk ten times the amou of iron and steel used in this country.

5. Wood is stronger than is usually supposed. In tensile streng (pull lengthwise or with the grain of the wood) a bar of hicko exceeds a similar bar of wrought iron of the same length and weigh and it even surpasses steel under the same conditions.

Similarly, a select block of hickory or of longleaf pine sustains greater weight in compression endwise (parallel to the grain of t wood) than a block of wrought iron of the same height and weigh and nearly approaches cast iron in this respect.

6. Wood is very elastic and resists bending to a marked degre and though the modulus of elasticity of iron as ordinarily stat appears 10 to 15 times as great as that of good ash of longleaf pi yet a square 10-foot bar of the latter wood requires 6 to 8 times great a load to bend it by one inch as a similar bar of iron of t same length and weight. Moreover, wood endures a far great distortion than the metals without receiving a "set" or permane injury. It does not rust nor crystallize, but retains its quality, a being light, and therefore used in solid pieces, may be selected wi perfect assurance of avoiding "flaws" which are so dangerous in metals when used in small pieces combined to make a larger structu

7. Wood is light; iron and steel are heavy. The average weig of all wood used in this country does not exceed 31 pounds per cub foot; that of iron and steel is from 430 to 450 pounds per cubic fo This quality effects ease of handling and transportation; it permi the floating of most woods when green and of all when dry, a with its superior strength and stiffness results in a saving of mo than 75 per cent. in the weight of structures, frames, floors, furnitu etc.

8. Wood is a poor conductor of heat and electricity. Heated 150° F. or cooled below the freezing point of water, iron, steel, a other metals are painful to the touch, and even far within the limits metal objects are objectionable on account of their rea conductivity of heat. Wood, on the other hand, is entirely inoffe sive as long as its temperature remains within the above limits. T objections to metal dwellings on this account are experienced al in heavy-armoured ships, which, in spite of the excellence of oceanic climate, are notoriously uncomfortable and even injuri to health.

When exposed to heat, wood is ignited and destroyed by fi The inflammability and combustibility of wood at high temperatur though among its most valuable properties, are, at times, a drawba which metals do not share; for, while a beam of wood burn it retains its shape to the last, and the structure may stand and saved, while under the same circumstances metal beams twist o of shape and thereby occasion the fall of the entire structure. Th

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Do. Iron 10½ x 8½ or 9½ x 8 abt. 4 lbs. wt. „ ...	7	8	0
Quintanies, Steel 15″ x 6,″ 5½ lbs. weight ... „ ...	18	0	0
Do. 9½″ x 5,″ 3¼ „ „ ... „ ...			
Manure Pans, (Galvd.) 7″ deep x 18″ top x 10″ bottom „ ...	23	4	0
Pitting Bars (Alavangoes), well-steeled points, 3″ spade end, 45″ long, 9 lbs. wt. „ ...	16	8	0
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behaviour of wood in conflagration has induced the best authorities, fire underwriters and others to recommend the use of wood in all large structures where the combustible contents of the rooms annul the value of fireproof metal construction.

If wood were a good conductor of electricity, its usefulness as a material of construction in our large cities would be much impaired, for it appears to be a very serious and constantly growing difficulty to protect life and property against this dangerous and yet so useful force.

9. Woods are normally inoffensive in smell and taste;liquors and wines of the most delicate flavours are kept in oaken casks for many years without suffering in quality. Chemical changes, often directly producing poison, prevent the use of cheap metals for these purposes.

10. Owing to their structure, all woods present varieties of characteristic aspects and possess no small degree of beauty. A plain surface of metal, of whatever kind, is monotonous, while one of wood, unless marred by paint, presents such a variety of unobtrusive figures that the eye never tires of seeing them. That this beauty is quite fully appreciated is best illustrated by the fact that pianos, sideboards, and other elegant furniture are not covered with sheet metal (as they might very cheaply and effectively be) and that the handsome floors of costly structures are neither painted nor carpeted.

11. Wood is easily and effectively united by the simple process of gluing, so that valuable combinations, whether for behaviour, strength, or beauty, are possible. A three-ply veneer board may not only be as pretty as, but also more serviceable than, a simple board of any one of the two or three kinds of wood of which it is composed, and a white-pine door with cherry or walnut veneer is not only fully as handsome as a walnut door, but it is far superior in its behaviour. Since all shrinking and warping is thereby practically prevented, iron and steel may be welded, most metals can be soldered, but none of these processes can be compared to gluing in effectiveness and ease of operation.

So far wood has been regarded only as a material of construction; but while this is perhaps the most important consideration, the use of wood as a substance which may be altered physically and chemically is far more important than is generally admitted.

12. The great mass of mankind is warmed and has its food cooked by wood fires. Even in this country to-day, in spite of the great competition of coal, three-fourths of all the houses and thousands of manufacturing establishments are supplied with heat from wood.

13. Wood is ground into pulp and made into paper and pulp boards with endless variety of application. Wood pulp made by chemical processes results in cellulose and its countless derivatives, which are capable of supplying almost anything, from a shirt collar to a car wheel.—*Tropical Agriculturist.*

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DISTRICT ASSOCIATIONS.

SHEVAROY.

PROCEEDINGS of the monthly Committee Meeting of the Shevaroy Planters' Association, held in the Victoria Rooms, Yercaud, on Monday, the 6th June, 1898, at 1 P.M.

PRESENT.—Mr. S. M. Hight, Mr. Thurston Short, Rev. J. M. Kempf, Mr. C. G. Lechler (*Chairman*), Mr. R. Gompertz (*Honorary Secretary*).

1. Notice calling the meeting was taken as read.

2. *Read* letter from the Secretary, U.P.A.S.I., dated 5th ultimo, enclosing extract from a letter from the Chairman proposing that his expenses, when attending the Annual General Meeting, should be paid by the U.P.A.S.I., as well as Rs.10 per month to cover the expense of a clerk and postage.

The proposal was approved.

3. *Read* letter from Secretary, U.P.A.S.I., proposing that the Annual General Meeting should be held during the Bangalore races.

Not approved of.

4. *Read* letter from Honorary Secretary, South Mysore Planters' Association, proposing that the U.P.A.S.I. dinner be eaten on the 13th August; and that the meeting should open on the 15th idem.

Approved.

5. The following letters were read and recorded:—

Correspondence with the Accountant-General on the subject of supply bills.

Three Circulars from Secy., U.P.A.S.I., *re* Currency question.
One do. do. do. do. Type-writer.
One do. do. do. do. Lady-birds.

Proceedings of the Board of Revenue *re* disposal of applications under the Waste Land Rules.

The following papers were laid on the table:—

Copies of *Planting Opinion* received during the month.

Proceedings of Nilgiri Planters' Association.

Report of operations of Land Records and Agricultural Department in the Madras Presidency for 1896-97.

List of Agricultural implements and machines tested in India during the year ending 30th September, 1897.

A number of back copies of the *Central Africa Times.*

(Signed) C. G. LECHLER, *Chairman.*
(„) ROBERT GOMPERTZ, *Honorary Secretary.*

COORG.

PROCEEDINGS of the Annual General Meeting of the Coorg Planters' Association, held on Tuesday, 31st May, 1898, at the North Coorg Club, Mercara.

PRESENT.—Messrs. W. M. Ball, H. F. Davy, H. R. East, Jas. T. Morgan, G. R. Pearse, W. H. Sprott, C. Thimmiah, R.B., J. Salisbury Trelawny, R. D. Tipping, and H. G. Parsons, *Hony. Secy.* Mr. W. H. Sprott in the chair.

The Honorary Secretary then read the following report for the year, and placed the accounts on the table, which he would have audited before publication, the position being sound enough if members would pay up arrears as soon as possible.

The late President, Mr. John Logan, had gone to England, so the Honorary Secretary had been informed.

Annual Report, 1897-98.

GENTLEMEN,—On behalf of your Committee it is my duty to submit the following report on our work for the past year, and in doing so regret that I shall not be in my place to read you the report for next. Private business demands so much of my time, and the affairs of this Association require such constant attention, that it will be better for me to resign the management into the hands of some other

more capable and energetic member. I retire with a pang of regret, having had four years of interesting work,—work that is simple in some ways, but which demands much of one's leisure if the interests of the Association and of our community are to be honestly protected and advanced.

Crops.—The coffee crop just gathered, although better than 1896-97, was not good, and many may have found it difficult to cover working expenses. The official returns give the crop of 1896-97 at 1,593 tons against 3,650 tons in 1895-96, and the 1897-98 outturn will probably be between the two, say 3,000 tons. Your Committee regret they are unable to report as satisfactorily as our friends on the Nilgiris, who are to be congratulated on the crops referred to in their annual report, and we think that there is no doubt our short fall is due to unfavourable blossoming weather. The prospects for 1898-99 are considerably brighter, and there will probably be a substantial increase on all European estates and some native gardens. "Leaf disease" has not been bad. "Borer" somewhat worse.

The fall in prices and rise in exchange necessitate strict economy in the working of estates, and it is a question whether the system of working Coorg estates as in the early eighties is not better adapted to the requirements of the land and the shrub than that in vogue in recent years.

Tea.—The first tea estate of any area in Coorg is now being opened, and the experiment is one to be regarded with interest. If successful, your Committee believe that the benefits to the Province will be far-reaching.

Mica.—The geological survey of Coorg by Mr. T. H. Holland resulted in the discovery of another industry in mica. Those who have veins of good quality are advised to prospect, for the samples submitted to London experts have received favourable report. It is to be hoped that if anything does come of the discovery, Government will be liberal in the treatment of those who have not mining rights.

Chief Commissioner.—Colonel Robertson at Pollibetta on 17th January, 1898, received a deputation of your Committee. A report of the meeting has been circulated amongst you, and we are now in communication on certain subjects referred to in it.

U.P.A.S.I.—You will have seen the extent of business transacted at this meeting in August, 1897, from the full report in the book of proceedings. There are, however, a few points to be touched on. We were unprepared to actively support the engagement of an Agricultural Chemist. We strongly urge experiments in the matter of improving the strain of our coffee; in fact, we are of opinion that the deficient yield is partly due to the deterioration of the plant and not the soil. The report of the Committee of Inquiry was considered by the meeting in private, and we now await the orders of the Government of India.

It is gratifying to note that the Madras High Court decided in our favour the question of jurisdiction of Act XIII. of 1859.

The Circulars on the Currency Question, placed on the table, are interesting. Your Association recommended that a small Committee in London, consisting of Messrs. Acworth, Mangles and Sanderson, should be appointed to watch our interests and select suitable witnesses to give evidence before the Commission which has just commenced its sitting; the Chairman, U.P.A., has, however, given Mr. Acworth a free hand.

This contraction of the Currency is proving very serious to many of us, and especially those requiring advances against growing crops. Let the security be ever so good, the money is not available. The revenue of Coorg has fallen considerably and will yet go lower. The Government of India may gain in some ways by an arbitrary exchange, but they lose by agriculture and produce, and at the same time create a discontented people not confined to the natives of the country only. The Secretary to the Chief Commissioner in his letter, No. 2051, dated 28th December, 1897, to the Secretary to the Government of India, Home Department, says in para. 3:—

"A remarkable feature in the year's administration was the great scarcity of money due to the plague in Bombay, and the serious curtailment of banking business which followed upon the decline of trade and the difficulty of communicating with that port. Almost all the local bankers stopped making advances, and as crops were only saleable at a loss, the people experienced the greatest difficulty in obtaining advances, even by pledging gold ornaments. This scarcity of money necessarily affected the collections of the Government revenue."

We can from our own experiences endorse these remarks, and what was bad then is worse now: there were no local buyers of coffee in the past year, and owing to the difficulty of procurin money, distress and poverty are severe: moreover, we do not suppos that Coorg is singular at the present moment.

If matters do not improve, some estates may suffer damage tha will take years to repair; for it is not to be expected that mone will come from England with every prospect of having to be returne at a loss.

Railway.—Your Committee regret they have no progress t report, and although the question is broached spasmodically, they d not anticipate that anything will be done beyond perhaps a occasional letter; in fact, situated as we are, little real interest i evinced by Government, and as long as the Railway Department o India is controlled as at present, the prosperity of a province c community will be sacrificed to the interests of rival Railway Com panies. No reference concerning a railway is to be found in th administration report for the year. Your attention is drawn to a article in the *Times* reviewing a paper read by Mr. Horace Be before the Society of Arts on Indian Railway policy.

P.W.D.—The existing roads are being well kept up, but no ne communications opened, the reason being want of funds. Th Ponampett-Wynaad estimate has been passed and the road sanctione but there is no money to complete it. We understand, howeve Rs.20,000 will be spent. Hatti-Madapoor bridges were urgentl pressed on the Chief Commissioner's notice. The divergence of th Mail Tonga renders more conspicuous the necessity of the Pollibetta Sidapur road.

Police.—We have a European Inspector, but no Assistant Super intendent, the excuse again being want of funds. It is difficult fo us to understand this, for we know that there have been sufficien funds to raise the salaries of the higher officials, doubtless to th advantage of the province, but none to supply an Assistant Super intendent of Police.

The duties of District Magistrate and Police Superintendent ar still combined.

Forests.—The grazing question having been finally disposed o to the satisfaction of those concerned, it is to be hoped that th subject may be considered finally closed. Your Association has ha no complaints during the year. The area of Government Forest remains the same.

Postal.—We understand that the Mail Tonga Service has bee extended for five years, and the mails now run *viâ* Pollibetta, Sidapu and Mercara, thereby covering a greater mileage through th Province. The alteration should be of benefit to the public gen rally, although the mails may take longer to reach Mercara.

The sale of quinine powders of 5 grains each at all Post Office should be noticed; the sale last year amounted to 14,901 powde and is increasing. We regret to observe, however, the price ha been raised.

Cash.—The Accountant-General has received our thanks fo granting Rs.1,000 drafts on Mercara Treasury; the concession is the greatest value, seeing that some of the leading discount agent have discontinued business, and for the benefit of South Coorg it i hoped that Veerarajendrapett Treasury will cash drafts in future.

Land Settlement and Survey.—The result shows an increase Rs.60,142 or 19·86 per cent., to which add the Land Record less th increase on the revenue demand since 1892-93 comes to 32·84 pe cent. It must be pointed out that probably 25 per cent. of th increase is due to concealed cultivation discovered by survey; a the same time the increase is very much more than the Gover ment of India anticipated when introducing the survey (*vide* lette No. 133-11, dated 11th January, 1893). limiting the increase to 10·1 per cent. The land revenue per head of population amount to Rs.2-0-7.

General.—As is usual in recent years, it may interest you t touch on points of general interest to our community. Mr. F. E. Carr has been succeeded by Mr. M. E. Couchman, I.C.S., as Di trict Magistrate and Police Superintendent of Coorg, and the be wishes of the Association are with Mr. Carr wherever he is employe for it was with great regret we heard of his transfer.

Our relations with all Government officials has been harmonio in the past year.

The revenue of Coorg collected for 1896-97 amounted to Rs.8,62,30 against Rs.9,65,300 for 1895-96, a decrease of Rs.1,03,000, and th surplus amounted to Rs.2,46,600 against Rs.3,26,800 in 1895-96, decrease of Rs.80,200 caused by decrease in forest receipts, and decrease in collection of revenue of Rs.38,944, of which Rs.25,78 was kept in abeyance.

The Jail made a profit for the year of Rs.9,562, which perhaps indicates scope for private enterprize.

The Land Revenue demand under all heads amounted to Rs.4,55,324, an increase of Rs.59,119 over last year.

Coffee assessment showed Rs.1,51,481, an increase of Rs.18,168 and the Land Record cess brought in Rs.40,366, an increase of Rs.5,463. It would be interesting to know the cost of the Land Record Department as compared with the cess collected; but no account of this can be found in the Government journals to which we have access.

The area of coffee land amounts to 109,385 acres against 84,991 in the previous year, an increase of 24,394 acres, of which 31,786 acres are held by Europeans and 77,649 by natives; the increase is due to the correct area having been discovered by survey. It is difficult, however, to determine the cultivated area, for it is well known that much land owned by natives is practically abandoned.

Labour was abundant during the year, but an unfavourable blossoming season, and then an abnormal monsoon, all told against a profitable yield, and if the official returns are correct, which is doubtful, the coffee crops ending with 1897 must have been one of the shortest on record.

In conclusion, we have to record with regret the deaths of Mr. William Wright, an old member of this Association, and Mr. Ch. Karmubiah, who had recently joined us. It is also fitting for us to offer our sincere regret at the death of the Rev. A. Fennell, who was a staunch supporter of the Association in its early years, and one who took the keenest interest in the planting enterprize.

The accounts are laid on the table, showing a surplus of Rs.203-14-9 if all outstandings are recovered and dues paid. We subscribe Rs.400 to the U.P.A.S.I., and have 40 votes; your delegates did not deem it advisable to commit you to a larger subscription for the present. The question of individual subscriptions to the U.P.A. having been settled in this way, it remains to be seen how it will work.

The year opened with a membership roll of 77, three resigned and three new members joined; we have lost by death two, and have had to write off one, leaving 74.

Your Committee, President and Honorary Secretary now tender their resignations, and ask you to open the ballot papers for the election of officials for the new year.

Your retiring Honorary Secretary returns his best thanks to all those who have assisted him for the past four years, and these years will be found to have been of more than passing importance when the history of our Association comes to be written. With hardly one exception he has had most cordial relations with all members of the Association, and although wishing to retire from active work, his interest will not abate; and whatever judgment you may pass, let him assure you that the interests of this Association and all brother planters have always been his first consideration.

Proposed by Mr. Sprott, *seconded* by Mr. Ball, that the Annual Report be accepted. Carried *nem. con.*

Ballot.—The following gentlemen were elected for the year:—

President.	*Honorary Secretary.*
James Chisholm, Esq.	H. G. Parsons.

Committee.

NORTH.	SOUTH.
W. M. Ball.	A. Bopanna.
H. R. East.	E. M. Breithaupt.
E. A. Fennell.	J. S. Gerrard.
E. Meynell.	H. G. Grant.
Jas. T. Morgan.	A. Lambert.
W. H. Sprott.	J. Rose.

Currency Committee.—*Proposed* by Mr. Ball, *seconded* by Mr. Morgan, "that the Honorary Secretary do write immediately to the Secretary, U.P.A.S.I., calling attention to this Association's letter, dated 8th May, 1898, with a request that the opinion therein expressed may receive every consideration." *Carried.*

Several circulars on the subject from the Secretary, U.P.A.S.I., were read and recorded.

Tonga Service.—*Proposed* by Mr. Trelawny, *seconded* by Mr. Sprott, "that the Mail Tonga Agent be written to pointing out the inefficient state of his establishment with a hope that now his contract has been extended for some years there will be a marked improvement." *Carried.*

In speaking to his resolution, Mr. Trelawny gave some illustrations in support of his complaint and was corroborated by others.

Circulars, U.P.A.S.I., dated 24th March, 18th April, 19th April, 21st April, 23rd April, 27th April, 3rd May, 4th May, 5th May, 18th May, 27th May.

Resolved that the Annual Meeting of the U.P. Association be opened on Tuesday, 9th August, as suggested by the Chairman.

Honorary Secretary.—Messrs. Ball, Morgan, Sprott and other members present urged the retiring Honorary Secretary to withdraw his resignation, and several members having spoken with appreciation of the work of the Association, it was *proposed* by Mr. Morgan, *seconded* by Mr. Davy, "that a hearty vote of thanks to Mr. Parsons be recorded for the very able manner in which he had conducted the work of the Association during the past year, and that the Meeting record with pleasure his consent to accept office for another year." *Carried* unanimously.

Mr. Parsons, in thanking the meeting and those members present who had spoken in so friendly and complimentary a manner of the work done, was glad again to undertake, to the best of his ability, the duties of Honorary Secretary, and in doing so begged to return his warmest thanks to all members who had shown such confidence in him as the ballot papers revealed. In fact, his re-election was so pronounced that it would almost amount to discourtesy to refuse office, unless for some insuperable cause.

He thanked them all for the honour, and would do his best in the interests of an industry upon which their means of livelihood and happiness so largely depended.

The following papers were laid on the table:—

Report of S. Coorg Coffee Stealing Prevention Fund to 31st May, 1898.

Lower Pulney Planters' Association Meeting, 12th February, 1898.

North Mysore Planters' Association Meeting, 28th February, 1898.

Wynaad Planters' Association Meeting, 2nd March, 1898.

Shevaroy Planters' Association Meeting, 7th March, 1898, 4th April, 1898.

Central Travancore Planters' Association Meeting, 9th April, 1898.

Nilgiri Planters' Association Meeting, 13th May, 1898.

Land Records and Agriculture Report, Madras Presidency, 1896-97.

With a vote of thanks to the chair, the meeting ended.

H. G. PARSONS, *Honorary Secretary.*

Next meeting, July, at Pollibetta.

ROUND THE BUNGALOW.

NOTES BY A "PLANTER'S WIFE."

Mushroom baskets. Make some puff paste; roll it out very thin; line some small moulds with it, filling up the centre with barley or rice that they may keep their shape till baked, when it must be removed. Fill the inside of these moulds with mushrooms and tomatoes minced; pound this mixture in the mortar with a shalot, one ounce of butter, a tablespoonful of thick white sauce, into which a few drops of lemon have been squeezed. Some of the puff paste should have been twisted into lengths bent to the shape of handles, and baked at the same time as the puff paste. Put the handles in, and decorate with fried parsley and preserved barberries. These baskets can also be filled with lobster, chicken, or game.

Mushroom stew. Take some mushrooms, peel them and lay them flat on a dish with the gills up, then sprinkle well with pepper and salt and leave them for an hour or two, then place them carefully in a saucepan in which one ounce of butter should first be melted, stew gently over the fire until the mushrooms are tender, add half pint of new milk and bring to the boil when it should be thickened with one or two ounces of flour, mixed with cold milk until it is as thick as cream. Add this to the mushrooms and milk and boil for a few minutes, pour the mixture over buttered toast and serve hot.

Mushroom omelet. Break three eggs into a basin and whip them till well mixed; add pepper, salt and the mushrooms chopped. Melt one ounce of butter in the omelet pan; when the butter is quite hot pour the egg mixture into the pan, stir quickly to prevent sticking. Keep shaking the pan to prevent the omelet from sticking or burning, spread it over the bottom of the pan to let it cook through, and watch it carefully. When just set, take a knife and put it under the omelet and fold the omelet over. When the omelet is of a pale brown colour, turn it out of the pan into a hot dish, and serve at once.

The mushrooms can be chopped up in the egg mixture, or can be made into a puree, and inserted between the folds of the omelet after it is folded.

Mushroom rissoles. Required: Pastry, mushrooms, eggs, and crushed vermicelli. *Method.*—Stew some mushrooms when cooked, mince them and put them on a plate to cool. Roll out some good short crust very thinly; it can hardly be too thin; stamp into rounds, brush the edges with egg, and lay a spoonful of the minced mushroom in the centre, double the pastry over, and join the edges firmly. Brush over with egg and roll in crushed vermicelli. Fry in hot fat, garnish with fried parsley.

Pigeon en Ragout de Crebettes. Prepare a couple of pigeons, cut them in half, and put them in a stew pan with a glass of sauterne, half a pint of stock, a sprig of parsley, two cloves, pepper, salt, and a shalot; simmer till cooked, strain the gravy. Now put an ounce of butter with a dozen button mushrooms and two or three dozen skinned prawns into a saucepan with a tablespoonful of flour and the gravy the pigeons were stewed in; simmer this for half an hour, then thicken it with a gill of cream and two yolks of eggs, add some finely chopped parsley and a grate of nutmeg. Dish up the pigeons with the mushrooms and prawns in the centre.

HEALTH AND HARD MUSCLES.

IF John Simpson were not a blacksmith we might not have occasion to allude to him at the very outset of this writing. But he *is* a blacksmith and will thus serve an important purpose; that, too, without having to put on his leather apron to do it.

And he will do it by standing in front of his forge for five minutes while we all take a look at him. He is a strong and robust man, as Mr. Dickens's Joe Gargery was—as all blacksmiths ought to be. Ought to be, I say. But *are* they?—as a matter of fact? No, they are not—not by many a length of nail rod.

Now it is somehow a common notion that all men who work hard, especially amid rough surroundings and in the fresh air, are apt to be vigorous, healthy fellows; they are supposed to joke at doctors, to have no use for apothecaries, and even to regard undertakers as the necessity of a distant future. Is this view a true view? Are health and hard muscles always found together? Take your time to think. Meanwhile we will hear what Mr. Simpson himself says:—

"Up to the spring of 1885," he writes in a letter dated May 5th, 1893, "I was strong as most men—perhaps stronger than most. Then I began to suffer from illness. My victuals and I had a falling out. After every meal I had great pain and fulness of the chest. Then I got into such a condition that I had these feelings nearly all the while. I tried to avoid them by eating nothing but light food, but the result was just the same. I think a morsel of bread would have hurt me almost as much as a round of beef. Then I began to lose weight, and had all I could do to keep up with my work. The doctor gave me medicine but I got no help from it.

"I was wondering how this would end when I heard of Mother Seigel's Curative Syrup and bought a bottle of it from Mr. James Crossley, the grocer at Mile Walk. The effect was speedy. It appeared to go straight to the right spot, and it wasn't long before I was able to eat without any pain to follow. Then my strength and flesh gradually came back, and ever since I have done my work as easily as I did before the disease, whatever it was, overtook me. (Signed) John Simpson, Cliviger, near Burnley."

Now, about that health and hard muscle question that I put to the reader; what's the answer? Why, of course, the answer is what any intelligent man would make who thinks with his eyes open. No; health and hard muscles are not always found together. But let us look sharp and commit no errors. The facts run this way: While a man cannot grow strong without a certain degree of health, it is also true that a notable amount of muscular power is consistent with both organic and functional trouble of the stomach, liver, kidneys, or heart. A man may be able to lift 500 pounds, and drop dead within a minute after he does it.

Sailors, farmers, miners, drivers of trams, 'busses, &c., outdoor labourers of different sorts (especially after reaching and life) nearly all fall victims to rheumatism, nervous debility, or dyspepsia. Yes, and do hard work for years just the same.

I said "*or*" dyspepsia. Leave out the "or" and say dyspepsia—dyspepsia only—and you have struck bottom. This produces all the other maladies; they are merely results and symptoms of it. There no keeping clear of it by running off to sea, working on a farm, diving down into a mine. No matter where you go or what you d indoors or out, clerking in the Bank of England, or driving t locomotive of the Scotch Express—*dyspepsia* will get hold of you you give it a chance. And most men do *that* as if they were as eag to be ill as they are to be rich. Which reminds me to tell you in subsequent article how to avoid dyspepsia. For this time I can on speak of how to cure it. Imitate John Simpson's example. Do wh he did. And remember that stalwart men (all unconscious) oft stand nearer a bed of pain, nearer death, than do the feeble wom whom they pity.

MARKET REPORT.

COFFEE.

Messrs. R. J. Rouse & Co's Weekly Coffee Report (March 6, 1898) says:

Auctions were resumed yesterday after a week's interval and t large supplies brought forward met a steady demand at about previo values.

No East India was offered.

Central American kinds, consisting chiefly of Costa Rica, attracted f competition, and the heavy quantities catalogued were nearly all dispos of at steady prices.

Futures have been slightly firmer again this week on the continu rise in the Brazilian Exchange, but very little business has been passi

C. M. & C. Woodhouse's Prices Current of the 12th May afford an inte esting comparative statement of the present prices of coffee from the differe districts of the world.

Sales include the following, viz.:—

PLANTATION CEYLON.—24 casks and tierces 15 barrels at 67s to 76s f smalls, 102s to 108s 6d for middling to fine, 113s to 117s for fine bo

EAST INDIA.—4,725 bags, viz.:—

MYSORE.—55s to 65s for ordinary to good small, 74s to 79s for l middling, 80s to 92s 6d for middling to good middling, 95s to 98s f fine, 97s to 111s 6d for grey to fine bold.

COORG.—45s 6d to 50s 6d for ordinary small, 59s to 66s for fair to go ditto, 66s 6d to 68s 6d for low middling, 80s to 85s 6d for middli 88s to 95s 6d for good middling to fine, 96s to 103s for bold, 107s fine bold.

NEILGHERRY.—49s to 63s for ordinary to fine bold, 67s 6d to 71s for l middling to middling, 72s to 77s for good middling, 88s to 103s f grey to fine bold.

SHEVAROY.—50s 6d to 60s 6d for smalls, 67s 6d to 73s for second siz 91s to 94s 6d for bold.

WYNAAD.—51s to 55s for small, 69s 6d to 72s 6d for second size, 90s f bold.

TRAVANCORE.—48s 6d for small, 67s for medium, 81s for bold.

NELLIAMPATHY.—48s 6d for smalls, 70s for middling, 85s for bold.

SOUTH SEA ISLAND.—79 bags at 26s for small, 35s 6d to 33s 6d f ordinary brown.

JAMAICA.—14 tierces 820 barrels and bags at 29s 6d to 32s for ordinar 37s to 41s 6d good ordinary, 46s to 50s for fine ordinary, 51s 6d 58s for fine fine ordinary, 61s to 69s for low middling.

COSTA RICA.—2,060 bags at 45s to 48s for good to fine ordinary, 52s 58s for fine fine ordinary, 60s 6d to 68s 6d for low middling, 69s 6 to 82s for middling to good middling, 97s for bold, 100s 6d to 10 for fine, 109s to 111s for fine bold.

GUATEMALA, &c.—6,850 bags at 38s to 40s 6d for ordinary foxy pale, 4 6d to 44s 6d for good ordinary ditto, 48s to 58s for fine to fine fi ordinary grey to green, 60s 6d to 69s 6d for low middling, 71s to 8 6d for middling to good middling, 85s 6d to 86s 6d for bold, 92s 6 to 101s for good to fine bold.

VERA PAZ.—350 bags at 62s to 66s for low middling, 78s for middlin 89s 6d to 99s for good middling to fine, 100s to 105s for bold.

MEXICAN.—340 bags at 43s to 45s 6d for small, 55s to 55s 6d for fine fi ordinary, 65s to 67s for low middling, 74s 6d for bold.

PERUVIAN.—25 bags fine fine ordinary dull green at 59s per cwt.

COLOMBIAN.—1,700 bags at 30s 6d to 40s 6d for ordinary to goo ordinary, 47s to 50s for fine ordinary, 53s to 59s 6d for fine fi ordinary, 60s to 69s for low middling to middling, 71s to 83s f middling to good middling, 83s 6d to 90s for bold, 98s 6d for fine bol

PLANTING OPINION.

A WEEKLY JOURNAL

WRITTEN BY PLANTERS FOR PLANTERS.

VOL. III.] **COONOOR, SATURDAY, JULY 2, 1898.** [No. 26.

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SUBSCRIPTION.—Advance Rates: Yearly, Fifteen Rupees; Half-yearly, Eight Rupees; Quarterly, Five Rupees, and Monthly, Two Rupees, including postage. Single Copies, Eight Annas.

ADVERTISEMENTS.—From the 1st October, 1897, the charge for line advertisements will be: 4 as. per line for the first, 3 as. for the second, and 2 as. for the third and succeeding insertions. Five-line advertisements from Subscribers will be inserted for three issues for one rupee; non-Subscribers will be charged two rupees.

DOMESTIC OCCURRENCE.—The fee for inserting a domestic occurrence will be *One Rupee* for each insertion, payable in advance.

N.B.—Remittances should be sent to the Manager, "Planting Opinion," 11/12, Second Line Beach, Madras.

IMPORTANT NOTICE.

The Business Offices of this paper having now been removed to Madras, all remittances should be made payable to the Manager of *Planting Opinion*, 11 and 12, Second Line Beach, Madras, who will also attend to all advertisements, &c.

Letters to the Editor should be addressed to Coonoor, as usual.

SEASON REPORTS.

TO OUR SEASON REPORTERS.

Please post your next reports to reach Madras on Friday, the 8th July, 1898.

Season Reports should be sent to the Printers, Messrs. ADDISON & Co., direct, and not to *Planting Opinion* Office.

Upper India. The season is still a late one in Assam, but tea-pests seem a little better than usual. Cachar is also behind-hand in its outturn. Darjeeling is picking up again, but, like the other districts, is in need of a lot more rain. Calcutta prices have set in very low all round, and things are looking blue all round.

Nilgiris. COONOOR, 29*th June.*—*Weather.*—A fair but very local shower last week put its lucky recipients into good spirits; but, speaking generally, rain is very badly needed, especially for coffee, as a good deal of the young crop is dropping. *Crops.*—Tea is picking up a little, but wants rain badly too; the tea-crop will be a very short one this year. *General Health.*—General health is still bad.

Coorg. POLLIBETTA, 28*th June.*—*Weather.*—Break continues. No rain during the past two days. Rather clear and chill to-night. *Crops.*—Weather has been excellent for bringing on the crop, which is now showing up nicely. Probably estimates will be slightly exceeded. *Labour.*—Coming in slowly; but estates fairly well supplied. *Health.*—Good.

Nellampatty (British). 29*th June.*—*Weather.*—Rain for fortnight 10·88, to date 36 ins. For last week there has been a pleasant little break, which still continues, though I fear it won't last long, as clouds are banking up and it looks very threatening again. *Plant-diseases.*—A little "leaf" showing in nursery here, but coffee in general still looks very fit. A great many plants in clearings have been attacked by ringer and a good deal of danger done. *General Health.*—Very bad still; great deal of sickness among

coolies and little improvement among ourselves. *Labour.*—Nearly all in: Moplahs seem to be finding work nearer home, as none have appeared this year yet.

ENSILAGE-MAKING.

THE South-West Monsoon is the season, in the majority of South Indian planting districts, when the growth of grass and fodder is most abundant. Yet a few short months after the rains have ceased, fodder of any sort for estate cattle is very scarce, and by the middle of the hot weather is almost unobtainable.

To preserve what is required out of this overflowing monsoon abundance is one of the easiest things in the world. To understand its neglect is to understand the reason of the despair of progressive agriculturists at the astounding apathy of the bucolic mind. If in the intelligent and generally resourceful planting community such matters as the preservation of fodder are neglected, the sullen indifference of the Indian ryot to the best-meant intentions of Government is not to be wondered at.

To return to our muttons. There is only one time of preserving natural grass, and that is in the monsoon, for it seeds at that season, and a seeded grass is almost valueless. And of methods of preservation there is only one: to make ensilage of it. The process of ensilage-making dates from ages long past. It is simple, inexpensive and most efficacious. It consists of placing the cut green grass in pits or masonry chambers, so that air and outside moisture are excluded. The temperature, under these conditions, rises to 80 to 100° Fahrenheit, and fermentation ensues with the formation of several acids, acetic and lactic acid, &c., which preserve the fodder. If, on the other hand, the atmosphere is more or less admitted, moulds form, and oxidation and putrefaction take place.

The simplest form of ensilage-pit or soils is a pit in the ground, choosing as site a position with good natural drainage. The size of the pit may be almost anything,—from 10 × 8 × 5 feet deep to 30 × 12 × 6 feet deep. It is not absolutely necessary to line them with masonry. But a cheap form of roof, thatch or any other convenient material, would be desirable, as also a shallow drain to carry off roof and surface water. The size of the pit depends, of course, on the quantity of cattle to be provided for, and the work required for them. If the ensilage is made from grass at or just before flowering time, 16,000lbs. of grass would suffice for a pair of working bullocks for six months. This would give them a ration of 60lbs. of ensilage a day, equivalent to 90lbs. of grass, for there is always a substantial loss in the food value of grass on conversion into ensilage. A pit large enough to receive these 16,000lbs. of grass would have to be 10 × 10 × 5 feet deep, or 500 cubic capacity. For ordinary estate cattle, whose sole function is to produce manure, the contents of such a pit would probably suffice for three if not four head. The cost for pitting may be put down at anything from 8 annas to two rupees per 500 cubic feet, according to the nature of the soil. The roofing would not cost more. Lastly comes the question of cutting the grass. This depends muchly on the supply, a cooly cutting from ten to thirty 100lb. bundles of grass per day. The cost would thus vary from one rupee four annas to four rupe per pit of above-named dimensions. The quicker t grass is filled in the better; and as soon as filled, the should be covered over with the earth taken from the and roughly thatched over to keep the rain out.

For estate manure cattle the cost of providing ensila for the six drier months of the year may, therefore, be rec oned at from nine annas to two rupees per head, or one an three pie to five annas five pie per head per month. N a very large sum this, when it is remembered what intimate connection large herds of cattle have on t fertility of an estate. An average cow or bullock in f health, and provided with sufficiency of fodder, will gi sixteen or more bushels of manure a month, the value which varies from one anna to four annas a bushel. the dry weather, with insufficient fodder, the supply manure decreases to about one-half, and the quality usually wretched. So that it does not take any ve elaborate calculations to prove the extent of the benef derived from an intelligent use of ensilage pits. At lea double the number of head of cattle could be carried wi safety, and, in some cases, treble.

NOTES.

Perfume-making. We reprint elsewhere a very inte esting description of the proce of perfume-making, which is really simple enough f almost anyone to attempt. Involving no hard work, b only patience and watchfulness, the distilling of essent oils is particularly adapted to the conditions of plan tion life.

Mange cure. The following is culled from Australian contemporary:—Boil linseed oil, sulphur and kerosine, equal parts. First m the oil and sulphur, then add the kerosine and mix wo Applied with a hard stubby brush. A tea-spoonful carbolic acid to a pint of lard, stirred in and well mix is also a good remedy.

Ceara Rubber. The *Madras Times* remarks:—

> In continuation of our article on Ceara rubber cultivation in Ind it is of interest to note that the price of crude rubber has advan 30 per cent. in England during the past six months. It needs imagination to see what a boon to the Forest Department, and our sadly-depleted revenues, a thorough success in rubber growing, it in Assam, or the Terai—the two most favourable regions—or Madras, would be. Forests, however, are not grown lightly.

London purple on white ants. Either of the two famous arseni preparations known as London pur or Paris green act effectively agai the white-ant pest. When the ants occur in walls, on t floor of buildings, on tennis-courts or such places, t stronger the solution the better, but care must be exercis in using the poison in the neighbourhood of plants.

Tropical fruits on plantations. In a letter recently address to the Nilgiri-Agri-Horticultu Society, General Morgan sensi recommended that tropical fruits grown on the slopes of t

Nilgiris should be more especially recognised in the fruit prize list of the shows. The Society should certainly devote more of its energies to the economic side of its shows. Such Society functions as flower shows are all very well in its way, but if the N.A.S. wishes to gain the general support of the agri-horticultural public, it must go to work in a very different way.

Papaws. Few are aware that there is more than one kind of papaw in cultivation, yet there are three distinct varieties. Two of these produce huge fruits weighing up to 9lbs. each. The Singapore variety is not as large, but has a fine flavour, and turns golden when ripe. It does not, says an exchange, appear necessary to keep male trees in gardens, and these are generally destroyed, but sometimes these unsatisfactory specimens are tapped—the operation requiring, as a rule, to be repeated often—till they become transformed into good fruiting trees. Papaw trees may be dicœcious, monœcious, and even hermaphrodite.

Cheap motors. The latest fairy tale of science is that a syndicate has been formed to acquire certain inventions for generating electricity by air. The discovery, if reports are to be relied upon, is one of the most important and far-reaching of the century. With a small apparatus, weighing only a few pounds, and without the aid of gas, or steam power, or dynamo, sufficient current can be generated for lighting any ordinary dwelling-house. Experiments conducted over a period of some months are said to show that very striking results can be obtained by this method, and that the current developed remains quite constant.

Pine-apple plantations. The enticing figures of the profits made from fruit cultivation in the West Indies would makes one's mouth water, if the disastrous effects of the decadence of the sugar industry in those islands were not so prominently before the public. For if fruit gardens are so extremely profitable, as newspaper clippings would have us believe, what is the need of the proposed grant-in-aid to the distressed local planters?

But some of the figures given in connection with pine-apple plantations in Jamaica are surely tempting enough to encourage some South Indian Planter to attempt to follow the example. Three hundred pounds sterling per annum from a six-acre pine-apple patch!

Bamboo scaffolding. A French Consul in the Netherlands Indies lays stress on the importance of bamboo as adapted for constructing builders' scaffoldings, and he states that in Japan even a lighthouse has been built with its help. It presents for this purpose perfectly ready-made poles of great length and lightness, which, combined with thinness, possess a much greater power of resistance than any other wood. The power of resistance of a bamboo cane measuring eight to ten inches in diameter, even with a length of sixty-five feet, is enormous. Moreover, bamboo does not rot, either when in the ground or in water; whilst the drier and older it grows, the firmer it becomes.

Indian arrow-root. Though Indian arrow-root commands but a very low price in the London market, it would be well worth while, writes a correspondent to an exchange, to experiment with the best tubers from the West Indies, and ascertain whether we could not successfully compete with the finest St. Vincent, which is quoted at 10*d.* to 1*s.* per lb. The process of preparing this farina is so simple and inexpensive that if we could obtain the prices above mentioned, arrow-root would pay better than tea. Where the West Indian planter has the pull over many of his East Indian rivals lies in his proximity to the coast. Tapioca does not afford the same inducement, its value being much lower, but still it might be made to contribute its quota to the general revenue of an estate.

Lemon-grass oil. Adulteration of this oil continues. Referring to the article by Mr. J. C. Umney in the *Chemist and Druggist* of December 18, 1897, a German firm of distillers confirm the observations therein recorded, and state that three kinds of oil may be met with in the market,—(*a*) natural lemon-grass oil, sp. gr. 0·9041, optical rotation—3 18°, and solubility in 70-per-cent. alcohol, 1 in 3; (*b*) oil deprived of citral, sp. gr. 0·9102, which is insoluble in 70-per-cent. alcohol, and, being heavier than that solvent, sinks in it; (*c*) lemon-grass oil adulterated with oil of lemon, sp. gr. 0·8886, optical rotation÷18 20°, insoluble in and swims upon 70-per-cent. alcohol. We also learn that *Andropogon citratus D.C.*, the plant from which lemon-grass oil is distilled, is now grown at St. Thomas in Portuguese West Africa, and the oil distilled from it agrees in physical characteristics with East Indian oil, but it is optically inactive. In our report of March 5 we mentioned the importation by Mr. Schlesinger of Tonkin verbena oil. This has now been chemically examined, and found to contain 70 per cent. of citral.

Pulping fruit. The following method of pulping fruit in Mildura, where apricots and peaches are the principal fruits used, may be of interest to those of our readers who are anxious to find a use for their superfluous fruit, viz.:—The fruit is first pitted and put into a copper or cauldron, and a little water added (proportion—gallon of water to 3 cwt. of fruit). It is then boiled for twenty minutes (*i.e.*, twenty minutes from the time it starts boiling). Unripe fruit will require a little longer, and should the fruit be watery, it can be cooked without adding water. When first put it is stirred constantly to keep it from burning. After cooking it is put into tins and the tins soldered whilst hot. Occasionally the fruit is cooked in the tins, and when this is done, the tins, after being filled and closed, are punctured and immersed in water to within, say, two inches of the top, or just so that the water will not boil over the top of the tin and get into the punctured hole. The fruit is cooked for twenty minutes, as explained, and the hot air is blown off through the hole. As soon as cooked the tins are sealed. Ten-pound tins are the best when the fruit is cooked in this way, as the re-action draws in and disfigures larger ones. The fruit done in tins is not pulped or mashed to the same extent as that which is boiled and stirred in the cauldron.

Coffee in Java. The decline in coffee prices, encouraged as it is by the great fall in the Brazilian exchange, appears to be having a very

adverse influence on coffee-planting interests in Java, says the *H. and C. Mail.* A stage of depression there, it is stated, has now been reached which justifies fears of the worst. It is reported that many estates there are to be "shut down." The position is said to be most unsatisfactory in Cotie—Dutch East Borneo—where the suitableness of the soil and climate to the cultivation of Liberian coffee led planters to open up estates very eagerly. Prices, especially for the Liberian description, have, however, fallen so low, and coffee growing in Brazil has been so extended, that all hopes of financial success in Cotie have now, it is stated, been abandoned. Only a year ago nineteen concessions for coffee planting in Cotie were applied for, but the outlook is at present so discouraging that all these applications will be allowed to fall through. Many coffee estates in Java also are reported to be in difficulties, and four are mentioned, valued in 1896 at 1,400,000 guilders, which are now in the hands of mortgagees, who intend to sell them by auction. It is added that the estates have, as a rule, been worked on so unsatisfactory a system that no provision has been made for bad years such as are now being experienced, planting companies having trusted to a continuance of the brilliant results at first attained.

Antiquity of vegetables.

Some of our most common vegetables seem to have come to us from a time that is immemorial. Asparagus was in use 200 years before the birth of Christ. According to Herodotus, lettuce was in use even earlier than asparagus, for it was cultivated as early as 550 B.C. Not only was it grown, but it was so grown as to be had at all times of the year, and even blanched to make it white and tender. What better does the gardener of to-day? The cucumber is one of the vegetables named in early Bible history, though some claim that melons were really meant. As to the melon, the date of its first cultivation is lost in antiquity, but Pliny records its use, and, as he died in A.D. 79, it probably is as old as the cucumber. Carrots and turnips were in use as garden vegetables before the Christian era. No one seems to have been able to trace the origin of either the pumpkin or the squash, but we read that pumpkin pies were made more than 300 years ago after this recipe: Cut hole in the side, take out the seeds and filaments, stuff with a mixture of apples and spices, and then bake till done. The ancient Greeks used to offer turnips, beets and radishes in their obligations to Apollo. The first they offered in dishes of lead, and the second in silver, but the third was offered in "vessels of beaten gold." Parsnips we find mentioned by Pliny as being brought to Rome from the banks of the Rhine at the command of Emperor Tiberius for use on his table.

The Ooty Botanical Gardens.

A correspondent wishes us to agitate that something more be done with the Government Gardens so that planters can get a larger supply of economic plants. We have written so strongly and so often on this very subject, that we must now leave the matter in the hands of planters themselves. It is altogether difficult to understand why the local Planters' Association has not taken it up before now. Let them plainly understand that Government, like higher powers, helps those that help themselves. Were planters to address His Excellency the Governor on the subject, we have not the least doubt that they wou meet with a favourable answer. But until they take t trouble to do so, it is not to be expected that Sir Arth Havelock will be at the pains to divine their collectiv dumb wishes.

The present Curator of the Botanical Gardens, Mr. R. Proudlock, exhibits the greatest interest in the econon side of his department. He has just now a large numb of valuable Para rubber plants for sale, grown from se collected at Burliar, besides ipecacuanha, coca and oth valuable plants. Being a Government servant, with certa other and very onerous duties to perform, he has little ti to spare for such work. And until public interest is unm takably shown in such work, it is not likely that Governme would wish him to devote his energies to what they m think a useless branch of his duties. We can assure c readers, however, that if any general movement is start in the direction indicated, we shall afford it our very hea support.

Ipecacuanha.

The source of supply of this dr is at present the rather limited ar of the plateau of Matto Grosso, west of the Paraguay riv near the western border of Brazil, and in the extre N.W.W. of Rio de Janeiro. Although the ipecacuan plant is said to grow over "a very wide extent of territor in Brazil, the collection is confined to the small pat The demand for india-rubber is drawing off the labour fr ipecacuanha-gathering. The cost of the drug to t merchant in Cuiaba is by no means trivial, for he mu spend at least 3*s.* per lb. before he gets the supply into yard and ready for despatch to the coast. A return cheap prices—say, 6*s.* per lb. in Mincing Lane—seems ve remote, says the *Chemist and Druggist.* And herein lies t planter's opportunity. Plants can be obtained in limit numbers from the Government Burliar Garden (Nilgiri and indeed is already being largely tried in the Annamala It may be as well to remind our readers of the growth a cultivation of the plant. It is a tiny shrub or plant so six inches high. It should be planted in a warm, moi sheltered position under high shade. The soil must be ri free and open. Planted in well-prepared beds six inc apart, the roots soon develop, and in a couple of years less are fit to gather. The plant is pulled up by hand, t roots broken off, and the stem replanted in the grou The money yield of an acre of ipecacuanha is so fabulou great that we refrain from mentioning figures: it will suff to say that coffee or tea even in their best days pale bef it. The only reasons for its cultivation not being extend at once on a very large scale are simply these: firstly, th ninety-nine out of a hundred planters are blissfully ignora of its possibilities; secondly, that the supply of plants still small; thirdly, that a well-grounded fear exists tha large area in cultivation would infallibly mean a crushi fall in prices.

Garden rows.

A correspondent to the Calcu *Planter* wants to know if the feeli of "unrest" which is prevalent in Bengal has a mysterious connection with the decided symptoms unrest exhibited by garden coolies in various directio lately. There have been an unusual number of gard

rows this year, and a decidedly unwholesome lot of cases of sahibs getting a mauling, or having to exhibit a very clean pair of heels, and make a record sprint for the bungalow to avoid it. One or two of these disturbances may be attributed to injudicious interference with the coolies at their annual saturnalia, the "Phagua" time, when they are all blind-drunk. But granting that at least two of these recent rows were the results of a Phagua drunk, the others were not; and even a Phagua drunk is no excuse for a band of *badmash* coolies laying out their manager, or trying to carve slices off him with hoes and such like things. The planter has law enough slung at him when he is run in for hitting a cooly. However aggravating and assault-provoking Mr. Coolie may have been, we must not take the law into our own hands. Surely, when the process is reversed, and the cooly "licks" the planter,—which process necessarily involves combined action and more or less of a riot, for the average planter doesn't take a "licking" from one man—it should be very severely impressed on him that *he* also must not take the law into his own hands. In one recent case, where the coolies actually thrashed the chota sahib, struck work, opposed the first (local) police force—(the average Assamese head constable and a couple of bobbies, I suppose) sent to restore order,—and eventually had to be straightened out by the Deputy Commissioner personally, accompanied by a force of frontier police, I am told that the ringleaders were simply warned, discharged, and told to be good and go to work again. But I can hardly believe this.

Coffee in the Shire. Coffee is beginning to show signs of ripening in the earliest districts, writes one of the last numbers of the *Central African Times*, and planters have now got a fair idea of what their outturn is likely to be. As was to be expected after the severest drought to which the industry has yet been subjected, the total output for the present year is likely to be less than the total crop of last year. Our highest estimate for the present crop puts it down at 6,600 cwts., or 330 tons, but we are inclined to think it will not exceed 6,000 cwts. The total last year was 7,600 cwts., or 380 tons. Had the past season been a normal one, there is little doubt that the present crop would have been more nearly 500 tons; the drought in fact has occasioned a loss of over two hundred tons. This is pretty severe on a new industry, but as has been pointed out before it is not likely to recur again, and the rainless condition was characteristic of South Africa generally, where such a dry season has not been known for over twenty years. The bushes have recovered splendidly from the effects of the drought, and all being well next year should see another record output. The lesson of the drought is to redouble our efforts to conserve moisture by tillage and shade. The present is the time to give the whole estate a light trenching over before the sun has time to rob us of any large proportion of the late rains. By keeping the top three inches in a fine state of tilth and never allowing it to cake, the maximum amount of moisture will be conserved. With reference to the coming crop, it cannot be too strongly impressed upon our minds that the curing is all-important at the present time. Only satisfactory prices will be realised by the finest grades, and it ought to be our endeavour to send home only the best coffee, cured with the utmost care, and picked over thoroughly to try and remove all defective beans and the oft-complained of "stinkers." Prices are still good for the finest grades, but the market is weak for all inferior sorts.

Timber plantations. Most plantations have considerable areas of reserve third-rate jungle, composed usually of poor scrub and indifferent jungle trees. It has not crossed the minds of their owners that the value of these reserve lands might be very considerably increased at a very small outlay by sowing them with the seed of valuable timber or fruit trees. Planting by means of pits is usually an expensive operation if over large areas. But there are cheaper ways by far and just as efficacious. The land could be cleared by giving it over to the local tribes, such as Kurumbers, Irulars, Badagas and so on, for their cultivation for a term of, say, three or four years. At the sowing time of their crop, the seed should be handed them for sowing with their own seed, broadcast or else in lines of a few feet apart. A few pice should be promised them for every three-years old plant, healthy plant growing on the land after the expiry of their contract. By that time the plants would be large enough to overcome any competition from the self-sown jungle. Large areas could be planted up in this manner with the minimum of expense. Of suitable trees there is great variety. If near the coast or railway, timber trees might prove profitable; even fuel under certain circumstances would pay, especially if the reserves in question were attached to a tea-plantation. Rubber trees again of all varieties, even such comparatively valueless kinds as Ceara, could be raised. Provided communications were good, the hardier kinds of fruit trees would be specially suitable. Or, if it were deemed unadvisable to indulge in such haphazard planting of remunerative trees, there would be an undoubted gain in sowing thornless leguminous jungle trees and shrubs, seed of which is always procurable in abundance. Half a dozen or more years of leguminous jungle growth would convert the valueless reserve into land capable of growing almost any crop that might be planted hereafter.

COFFEE SHADE TREE.

Sun-dried Erythrina Lithosperma loppings, &c., contain per ton:—

61·50 lbs. Nitrogen.
57·38 „ Potash.
14·92 „ Lime.
13·68 „ Phosphoric Acid.

Seed cured under Messrs. Sutton and Sons' advice.

Orders should be booked early for the 1898-1899 crop of seed from the parent trees of above analysis at Rs.6 per pound containing about 2,000 seeds. *Germination guaranteed.*

Only thornless variety extant, and is not procurable anywhere save from the

MANAGER, ARIENKOW ESTATE,
Shencottah.

How to treat bones. The following information regarding farm methods of treating bones, where no crushing-mill is available, has been furnished, in reply to a query from one of our correspondents, by Mr. A. N. Pearson, Government Agricultural Chemist, Victoria :—

Bones in country districts, where crushing-mills are not available, may be reduced by means of caustic lye, quicklime, or freshly-calcined wood ashes.

A simple plan is to pack the bones layer by layer, with freshly calcined wood ashes, in a barrel, and keep the mixture moistened for some months. Casks may be kept in constant use for this purpose on a farm, receiving every few days a fresh layer of bones and of ashes.

A quicker method is to boil the bones in an iron or copper boiler together with strong caustic lye. The proportions of bones and lye to be used are exact or not invariable. Roughly speaking, five parts by weight of caustic soda, or seven parts by weight of caustic potash, dissolved in 15 parts by weight of water, should disintegrate about 15 parts by weight of bones by two or three hours' boiling.

If the bones be allowed to remain in the caustic liquor, even without boiling, they will, in the course of a week or so, become disintegrated.

Another method of softening bones is by mixing in heaps with quicklime and loam. A layer of loam 4-in. deep is made, and on this is placed a layer about 6-in. deep of bones, and above this a layer 3-in. deep of quicklime. The layers of loam, bones, and lime are repeated in succession until the heap reaches a convenient height, when it is finally covered with a thick layer of earth. Holes are then bored in the heap from the top and water poured down them to slake the lime. The mass will become hot, and remain so for two or three months, after which the bones will be friable, and the whole heap may be mixed up, and is all ready for the ground.

Nutmegs. The cultivation of nutmegs is one of the simplest forms of tropical agriculture. It grows well at the best coffee elevations, but demands more moisture than, and as good a soil as, the berry. If the soil is very good, deep, and well drained, and the position a sheltered one, they may be planted 25 feet apart each way with advantage. If the soil is poor, they may be as close as 20 feet. To make perfectly certain of getting female or bearing plants in each pit, three seeds are usually planted in each pit. All male trees, save one or so, should be destroyed. Only one female tree should be left to each hole, the rest transplanted at one year old or destroyed.

As nutmegs take as long as twenty years to get into full bearing (though of course they begin to crop a great deal sooner), it is essential that some such staple as cacao, coffee, cassava, plantains, etc., should be grown as a catch crop. As the nutmeg trees expand in size, the other crop should be gradually removed, branch by branch, so as not to waste any crop. A good-bearing nutmeg tree is averaged to yield £5 per acre, but on a large acreage the yields are considerably smaller. If in a good situation, however, £50 to £100 per acre may be safely reckoned on, the expenses up to port of shipment averaging about 12 per cent. only of the gross returns. The best and largest nuts sell at from 2*s.* to 3*s.* 6*d.* per lb.; the intermediate and long-size ones vary from 10*d.* to 2*s.* per lb., while the worm-eat and rotten ones fetch from 4¼*d.* to 8*d.* per lb. Mace, whi is also a product of the fruit, sells from 1*s.* 6*d.* to 2*s.* 6 per lb.

There are many districts in the wetter parts of Coor Wynaad and Travancore, where nutmegs would flourish perfection, and pay far better than either the coffee or te which is the reigning staple. The expense incurred planting up a few acres with nutmegs would be very sma It would even be possible to clear away, say half a doze of the standing coffee or tea trees round each pit intende for the nutmeg, and let the latter only take pride of pla and finally sole possession when it begins to crop. See in any quantity can be obtained from the Burliar Garde by applying to the Curator of the Ootacamund Botanic Gardens. It would be possible at first to sell all the pr duce in the country, and at very remunerative prices.

Black ants. The following useful notes a taken from the *Tropical Agricult rist* :—

How to Prevent Ants from Attacking Sugar.—Some of your lad readers will no doubt be glad of this hint, the utility of which I ca testify to, and which I discovered by mere accident. Put your suga (I mean the small quantities required for daily use) into bottles other narrow-mouthed vessels, and use a *common lime well squeeze in for a stopper* and ants will never trouble it.—*Demerara Gazette.*

To Prevent Ants from getting on Wash-Stands and Dressi Tables, &c.—Rub chalk round the legs of these a little up from th floor, till the wood is quite covered with it, and the ants cannot wal over the chalk. It must be renewed every week or so. Anothe plan to prevent ants getting on the table, teapoy, bed, &c., is to ti round the lower end of the leg or post a thin slip of flannel dippe in castor oil—they will not pass over this; or place the leg in pan of water. To secure boxes from their depredations, the best plan i to place them on glass bottles laid lengthways, and if kept free fro dust, the ants cannot ascend. They have a great dislike to indigo and will seldom touch cloth dyed in it or saturated in a solution corrosive sublimate; the proportion of one pound to four gallons water is sufficient. They also dislike salt, which may be mixed u with the mud or gober that is sometimes spread over the floor wall; though this is not an effectual remedy, it is as well occasionall to adopt it.

To Destroy Red or Black Ants.—After having discovered th aperture of their nests, surround it with soft clay formed into th shape of a funnel, and pour in boiling water. Where they are in th habit of infesting a floor or room, lay down thin slices of raw mea or liver, upon which the ants will soon congregate; let a person g about with hot water in a basin, and throw in the meat as it covered; then shake it dry, and put it down again to collect more.

A Recipe for the Destruction of Insects, which, says the *Builde* if it be one-half as efficacious as it is stated to be, will prove invalu able, and especially we may add in tropical countries, is publishe by the *Journal of Chemistry.* Hot alum water is the suggestion a an Insecticide. It will destroy red and black ants, cockroaches spiders, chintz bugs, and all the crawling pests which infest ou houses. "Take 2 lb. of alum and dissolve it in three or four quart of boiling water, let it stand on the fire till the alum disappears, apply it with a brush, while nearly boiling hot, to every joint and crevic in your closets, bedsteads, pantry shelves, and the like. Brush th crevices in the floor of the skirting or mop boards, if you suspec that they harbour vermin. If, in whitewashing a ceiling, plenty o alum is added to the lime, it will also serve to keep insects at a dis tance. Cockroaches will flee the paint which has been washed i cool alum water."

To Destroy Insects in Flower-pots, Grub, &c.—A plant-growe of considerable experience tells us that a strong solution of coppera in soapsuds water is very invigorating to ornamental shrubs and pea trees. It will also destroy the small grubs that infest the roots o pot-plants. Ammonia water, of the strength of one teaspoonful o

spirits of ammonia to two quarts of water, is also a good remedy for the white grubs in pot plants, while it is very invigorating to the growth of the plants.

A teak pest.

Mr. T. F. Bourdillon writes in the *Indian Forester* :—The teak plantations of Southern India, at Nelambur, in Cochin and in Travancore, are liable to the attacks of one or more species of caterpillars which from time to time swarm over the trees in immense numbers, and consume their leaves, thereby doing a very great deal of harm. With a view to ascertain the species of moth or butterfly whose caterpillar was so destructive, and to learn something of the life-history of the insect, one of our Rangers, Mr. V. K. Govinda Menon, who was trained at the Poona College of Science in the Forest branch, was deputed last year to study the subject. His report, which has just been submitted, in spite of a certain quaintness of language, is instructive and interesting. I have obtained the following additional information from the Ranger and others. He writes :—The attacks generally begin in April, when the teak tree has put on its new foliage, and they last for about six weeks, when the caterpillars begin to disappear ; but one or two may always be found on the teak if a search be made for them. The wet weather probably prevents the moth from increasing, and very little is seen of it until September or October, when, if the N.E. Monsoon is light, its caterpillar may again attack the teak, the attack lasting about a month. Both very wet and very dry weather seem detrimental to the spread of the insect. When the caterpillar begins to pupate, it suspends itself by threads at either end to a leaf, not necessarily a dead leaf, spins a cocoon round itself, and folds the leaf over so that it is quite snug. The caterpillar will eat the leaves of some jungle plants as well as teak, and it has been found in the jungle. I am thankful to say that the caterpillar has an enemy in the shape of a fly which apparently lays its eggs in it, in which case the caterpillar remains inert, and after a time, some 20 or 30 minutes, flies appear. The Ranger thinks that more than one species of caterpillar attack the teak, and he will be deputed to study the subject further when the caterpillars begin to appear. Certainly, the species that is the most common and has done the most damage hitherto is the black-headed grey caterpillar here described. I forgot to say that the caterpillar, when it has once begun feeding, never leaves the tree, though it may shift from branch to branch when its food is exhausted in one place. It does not drop by a thread to the ground when it wishes to change its skin, and therefore the system of tarring the stem of the trees, employed in Germany to prevent the caterpillars re-ascending them, is inapplicable.

How bug appears.

We were recently asked how bug can come to an estate previously free from it. Nietner thus describes the method : "The eggs, which are a mere dust, are carried about by birds or insects to which they adhere, or by the wind. [Hence the importance of dense hedges or windbelts of bug-proof plants, dividing the estate into fields.—Ed., *P.O.*] If these are deposited in a favourable place they will hatch, and we have then the bug in the larva state. The larva in course of time assume a more perfect form, the pupa state, and eventually change into the imago or perfect insect. In the larva state the male and female brown bug [miscalled the black bug from its attendant black fungus.—Ed., *P.O.*] are not distinguishable ; but in the pupa state the male is very distinct, having all the characteristics of the perfect insect. In the white bug the sexes are distinct in all stages. The perfect males either do not feed at all, or if they do, it is probably on honeydew, for having no sucker they cannot feed like the females. The number of eggs produced by a female brown bug is about 700." The brown bug is dreadfully infested with parasites, and, if enclosed in a bottle, the little wasps may be seen to emerge and fly about in a short time. The black fungus, which gives bugged trees their peculiar sooty appearance, is a fungus growing on the excretion of the bugs. This excretion or honeydew is much relished by ants of all sorts, flies, bees, etc. Mana or lemon grass spread on the ground or tied round the stem is said to be very useful by its smell. Tar is often used for the same purpose. Nietner holds that the black fungus does a lot of harm by filling up the stomata of the leaves, etc., and by penetrating their living tissues. A later authority, Mr. E. Green, Honorary Entomologist to the Government of Ceylon, does not think, however, that injurious effects can be attributed to the fungus. When pulled or wiped off it leaves the surface perfectly clean and glossy, disclosing no injury from the fungus itself. Moreover as most of the stomata are on the lower side of the leaf, and as the fungus only appears on the upper surface, the plant can hardly be choked. The real damage is done by the insect itself in inserting its proboscis into the tissues of the leaf or tender stem and sucking its contained juices. The eggs of the bug, which are oval and of a pinkish colour, are not actually brought forth by the female, but when they are matured the parent insect dies, the whole interior forming one mass of eggs protected by the shell. It is, by the way, closely allied to the lac insect. Sometimes the shells are found filled with a white flaky substance, which contains numerous parasites which have killed the bug.

The members of the scale-bug family are either without means of locomotion or else slow to use their limbs where present. They are usually more or less permanently anchored to the plant by their long-sucking tubes. The females of all scale-bugs are invariably wingless, the males possessing two wings. The mouth parts are situate far back on the under-surface of the insect between, or even behind the insertion of the first pair of legs.

Butter direct from vegetables.

Butter without the aid of a cow is what Willard G. Day, an inventor, of Baltimore, Md., promises. Electricity is the chief agent Mr. Day proposes to employ in the production of butter directly from the vegetables which form the food of cattle whose milk is used in the churn. Mr. Day first discovered that the peculiar characteristic traits of different varieties of butter, cheese, etc., were owing to general causes. One was the kind of food on which the cow was fed ; the other was the kind of microbe nourished at and by the roots of the plant which furnished the food to the cow. Armed with these two secrets (says the *New York Herald*) Mr. Day began his work, which consisted in extracting and then assembling artificially the same products which are usually brought about by Nature. He succeeded in producing from the vegetable

kingdom oils which differed very slightly from those of the animal kingdom. Having got thus far, the next step was to change the vegetable oil by giving it the same chemical constitution as that possessed by the animal article desired —in other words, to make the animal butter oil out of corn, grass, and similar vegetable substances. The secret in this part of the process Mr. Day found to consist in the fact that animal and vegetable carbohydrates strongly resemble each other. The differences which are found in oils are nearly owing to the nitrogenous sheaths in which the globules of oil are contained. Thus to this sheath is due the tallowy smell of tallow, the mutton or smell of mutton, as well as all the rank odours of many vegetable oils. When oils are extracted by heat or the mechanical violence of pressure, the deleterious nitrogenous characteristics of the globule sheaths are imparted to the oil globules themselves, and no art can separate afterward. Here comes in the great discovery in the use of the electric light. Mr. Day found that when these oils and fats were subjected to the radiant energy of powerful electric light, the nitrogenous sheaths were shrivelled and their contents put in a condition to be milked out or extracted by a gentle pressure without being contaminated by the characteristics of the animal or plant itself. Another effect was also produced. Whatever microbe was associated with any particular oil or fat was killed by the actinic power of the light, thus leaving the article free from any of its native microbes and ready to be used as a culture medium for any desired microbe. Among the microbes destroyed by the light are those which cause putrefaction and decay, and so the articles acted on by the light are readily preserved as long as they are protected from new invasions of Nature's hosts of destroyers. As a result, the various kinds of butter, cheese, etc., made under the Day processes show most remarkable keeping powers, far surpassing those produced by the old-fashioned methods. For the same reason the new articles are not affected by any diseases such as tuberculosis and typhoid fever, which may be carried and transmitted in the milk of cows, as well as by contamination from barnyard association.

LETTERS TO THE EDITOR.

TEA PACKET MOULDS.

SIR,—Can you or any of your readers tell me the size of box on which to make 1 lb. packets to hold tea?

BOB.

TEA PESTS.

SIR,—Here in Kandy (Ceylon) I've found nearly all the tea pests known; among them a small black beetle, which is a new and nasty one. It attacks the tea at each joint just below where the leaf joins and drills holes all through the wood which rots and dies back: (1) The leaf falls off. (2) The branch dies back. (3) The tree dies out. It's not very widely spread so far. The only remedy I know is to prune sharp and burn prunings at once. The insect is very small. Of the older kinds of pests I've found (1) Borer; (2) Black bug; (3) Mealy bug; (4) Brown scale; (5) Flushworm; (6) Tea mites; (7) Accarus theivorens (?); (8) Helopeltis; (9) Red spider; (10) Caterpillars (?); (11) Cank In spite of this we get 800 lbs. per acre and might get more.

KANDY.

CATTLE TRESPASS.

SIR,—In your issue of the 18th I notice that cattle trespass still a source of annoyance to planters, and there is no leg redress except on the Nilgiris. Your correspondent sugges pounding cattle on his own estate, which is surely not leg He goes on to say that shooting cattle is "highly illegal a highhanded." It may be in other planting districts, but not some parts of Mysore territory. The manager of an estate cl to me, as well as the one of this estate, has permission (whi has been gazetted) to shoot all stray cattle in the esta Cattle about here are very wild, or, to use my writer's wo "barbarous," and not easily caught. When there are two a three berries on a cluster in this not too flourishing co district, it does not do to have them knocked off!

GOWDA.

KADUR DISTRICT,
22nd June, 1898.

JOTTINGS.

SIR,—There are one or two points in your late issues I shou like to notice. Irrigating tea is all right, but how many can it? Your correspondent, "Jottings from my Note Book," ne have no fear of wash if he forks properly. I could fork the si of a house without the least fear. I have seen a wonderful res from tea being fired by accident. You would not know the fie Your para. *re* Cattle Trespass will get the planter into serio trouble one of these days if he is not careful. His action altogether illegal, and anyone who did it to *my* cattle wou suffer, I can tell you!

Can you find out how the wind treated them *this* year on t Annamalais? It would be interesting to know. Fate of exchan seems hopeful again, looks like open mints, I say.

Agitate that something more be done with the Governme Gardens so that planters can get economic plants; at prese we can get little or nothing.

I have managed to get 11 kola plants to live out of that se you sent me, but the growth so far is very slow. It may better this year, but the market has apparently gone.

PYKARA.

GENERAL ARTICLES.

THE U.P.A.S.I. SECTION.

THE following cutting from the *Madras Times* is interest in connection with Mr. H. O. Newport's recent t to Australia in quest of Lady-birds :—

Mr. E. E. Green, Entomologist to the Ceylon Government, h been promised a consignment of living "Lady-bird beetles" fr the Cape, where, says Mr. Green, they have several species likely be useful to Ceylon planters. They are to be sent in a Wardian ca and will, he hopes, arrive in good order. He thinks that much go might be done by the gradual introduction of beneficial insects in t matter, and says that the cost of carrying out the work would comparatively small.

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JAMAICA GINGER.

One of the most readable papers which we have seen for long time is printed in the current issue of the American *ournal of Pharmacy*. It is entitled "In the Land of inger," and is written by Mr. F. B. Kilmer, who has resided n Jamaica for several years. It contains the most graphic ccount of ginger planting and harvesting which has been rinted for many years, and from it we draw the following articulars. Between 25,000 and 50,000 of the Jamaica opulation depend for their living upon the ginger-crop. he ginger is of two kinds—"blue" and "yellow"—but ne plants are botanically indistinguishable; the "yellow" the better root, being brittle and more pungent than the blue," which is tough and fibrous. These, again, are subivided into "plant" and "ratoon" ginger—the former is inger planted each season, and the latter is a return crop, ecured by leaving a part of the rhizome, in the ground at ne harvest-time. Ginger is planted in March and April. ieces of the rhizome, each with an "eye," are planted. ew planters have settled farms; they clear a piece of the orest, burn the weeds, and plough the soil a little, then do ne planting. When once in the ground the plant appears require little attention, except that it must be well watered, nd as there is an abundant rainfall in Jamaica, no labour this direction is required. Attempts are rarely made to rtilise the plant, manure being scarce in Jamaica, as there re no stables. The most that is done is to plough in the eeds and cover the ground with banana waste. As an xperiment, watering the beds with sea-water and sea-weeds as yielded good results; but the average planter is quite ndifferent to scientific cultivation, and this is bad for him, ecause the soil is impoverished by a few ginger-crops and dried-up streams, general barrenness—in fact, a wilderess—marks the progress of ginger-culture." The deepack soil of the virgin forest is where the best quality is roduced, and to grow ginger under this condition involves ne destruction of large areas of woodlands by fire. This rning is considered of great importance, as potash and her mineral matters contained in the ashes are deposited sweeten the ground, while the fire also destroys insect sts. In consequence of the many thousands of acres of nd destroyed and abandoned in this manner in Jamaica, e local Agricultural Society has been at work since 1895 worn-out land, and with the aid of suitable artificial anures have had very encouraging results in reclaiming e land. The Society is extending their operations by curing larger plots and giving aid to planters by furnishg manures, &c. The "ginger season," or harvest, is from arch to January. When the stalk withers and the bloom s departed, the rhizomes are twisted out of the ground ith a fork, an operation which takes long practice to come expert in. After the soil and fibrous roots have en removed, the root-stalk is thrown into water, when it ready for the peeling-operation. "Peeling-matches," in nich the planter gets all his friends to join, are a time of uch merry-making in the sable community. The peeling mostly done by experts with the aid of a simple knife. far peeling-machinery has been a complete failure. The eration is an all-important one, as may be seen from amination of a transverse section of ginger. First there an outer striated skin, under which are numerous layers thin-walled cork cells. The oil contained in these cells in fresh specimens is very pungent, exceedingly aromatic, and almost colourless. As this corky layer contains the greatest amount of oil and resin cells, the deeper the peeling is made so much more of these substances are carried away with the epidermis. When peeled, the roots are thrown into water and washed; the purer the water the whiter is the product. Sometimes limejuice is used in the wash-water, which gives a whiter root, but as the lime-juice contains saccharine matter and pectose, it prevents drying, and mildew follows. After washing, the rhizomes are dried in the sun, and in from six to eight days they become thoroughly dry. At sunrise the ginger is put out upon a barbecue (platform of stone or concrete), turned over at mid-day, and taken in at sunset. The average loss of weight by drying is nearly 70 per cent. Experiments have been made with calcium chloride as a drying-agent, but the result was not equal to the native method, and the same may also be said of American fruit-evaporators, in which wood is used as the source of heat. It has been asserted that it is a common practice to bleach ginger with the fumes of chlorine or sulphurous acid, but Mr. Kilmer states that no instance of it is known in Jamaica, as the planters are unintelligent, and are opposed through prejudice to innovations. Mr. Kilmer tried chlorine gas as a bleaching-agent, but the product was of a dirty yellow colour. When the crop is fully dried it is carried, mostly by women, to the place of sale, which may be from five to forty miles distant. Here it is sold by the "heap," not by measure or weight. A "heap" of ginger varies considerably, according to the law of supply and demand. If the "hands" are finally shaped and large, there are fewer in the heap; if small, dark, and snarly, the pile is made larger. Should the price of ginger in London or New York advance, it is because the heaps in Jamaica have been distinguished, and should the price go down the heaps have become larger. The exporters of ginger assort the produce into four or five grades, the highest being the large-sized hands of light and uniform colour, the lowest being the ratoon finger sorts, which are small, soft and lacking flavour. Some of the hands weigh as much as 8 oz. The amount of ginger exported from the island during the last ten years was as follows :—

	lbs.		lbs.
1887	1,121,827	1892	1,822,531
1888	1,141,877	1893	1,526,884
1889	1,002,653	1894	1,672,384
1890 (half year) ...	554,193	1895	1,736,460
1891	1,219,197	1896	1,960,609

Half of this goes to the United States. An average crop may be estimated at from 1,000 to 1,500 lbs. dried ginger per acre, and in some cases 2,000 lbs. As already mentioned, the Jamaica Agricultural Society is improving the methods of cultivation by fertilisation, and from information recently to hand it is predicted that the crop now about to be gathered will probably be a record one, partly due to an abundant rainfall. This will mean lower prices for the ginger-planter.—*The Chemist and Druggist.*

PERFUME-MAKING.

In answer to a correspondent enquiring as to the method of extracting scent from flowers, we give the following description of the two processes generally adopted :—

(1) The Cold Process.

Procure trays with glass bottoms, spread clarified fat a quarter of

an inch thick upon each side of the glass; gather the flowers early in the morning, and spread thin upon the fat. Close the glass-sided box. Every second day replace the old flowers by fresh ones, and renew them twelve or fifteen times. Then scrape the fat from the trays, break it up into very small pieces and digest it in spirits of wine 60 over-proof, say two lbs. of fat to 2½ lbs. of spirits. Stir every day for a month, keeping it covered. Then bottle and label it "Extract No. 1." Now add fresh alcohol to the fat (1 lb. is sufficient) and stir daily for a month. Pour it off then, and label the bottle "Extract No. 2." Do the same thing a third time, and so obtain "Extract No. 3." Now you had three bottles, all containing different strengths of extract, and all of value according to their strength. The fat is now melted in a *Bain Marie*, is poured off, and kept for next year.

(2) THE HOT PROCESS.

Take, say 2 lbs. of flowers, being careful that there are no stems; put them in a round tin. Melt 6 lbs. of clarified fat with only just sufficient heat to melt it. Pour it over the flowers, and leave them covered till next day. Now get a larger dish with hot water to melt the fat, on the same principle as the glue-pot. This is called by the French a *Bain Marie*. Now take another round tin containing 2 lbs. weight of the same kind of flowers. Place two strips of wood on top of this to hold a sieve. Then pour in the melted fat from the first pan, thus straining the leaves and allowing the fat to fall on the fresh lot of leaves in the second tin underneath. Cover up and again leave till next day. Clean the first tin for the morrow, so as to repeat the operation each day for fourteen days, when the fat will be fully charged and is ready to be digested in spirts of wine as described above. Only sufficient heat is required to cause the fat to melt and flow, as the extracts are very volatile at a high temperature, and a great loss may be occasioned by over-heating the fat.

If more rose leaves are gathered than can be used on the same day sprinkle them with salt, when they will hold their scent for a few days. This is called salting the leaves. For oils of the same plants coarse cotton cloths are imbued with the finest olive oil and laid upon a frame containing wire gauze in lieu of glass. On these the flowers are laid and suffered to remain until fresh flowers are procured. This operation is repeated several times, after which the cloths subjected to great pressure to remove the now perfumed oil.

How to make the Clarified Fat.—Take 7 lbs. each of beef, mut and pork fat; chop fine on a board, and wash in clean cold water, t put in a boiler with five gallons of fresh water; put on the fire; two oz. of alum and a handful of coarse salt and forty cloves; until all the fat is melted; then get another basin with five gallon fresh water, and skim the fat through a wire strainer into the wa now boil the second time (adding the same quantity of salt and al for one hour, and then let cool. On each occasion of its coolin dark-coloured sediment is found at the bottom. This must be c fully scraped away. When the fat is perfected white and p throughout, it is remelted and put away for use.

How to make a Cheap Still.—Construct a metallic tank of al 100 gallons capacity, the interior fitted with a holed false bott about 9 inches from the base. Set in brickwork (although thi not absolutely necessary) with a fire retort under it. A funnel ab a foot in diameter at its greatest extent, with a rim to enter an flange to support it, is fitted like a saucepan lid over a correspond hole in the head of the tank. A pipe 2 inches in diameter—a c tinuation of the funnel—continues like a spiral worm around interior woodwork of a barrel filled with cold water, the end proj ing near the base like a faucet. This completes the apparatus. five-gallon still can be constructed for about $25 (about £5).

How to operate the Still.—The space below the false bottom of still is occupied by water, in which a few pounds of salt or alum dissolved to increase the boiling point. The tank is now filled w the desired flowers and the funnel-shaped lid is held in place being screwed down and the joint packed with moist clay. A q fire is lighted under the still, causing vapour, which percola through the flowers lying over the false bottom releases the a and steam and oil go jointly up the funnel, and wind their through the condensing corkscrew pipe. A stream of cold w running into the tub condenses the steam and oil, which flows a glass jug placed at the lower end of the tube. The oil is seen f ing on the top, and is skimmed off with a spatula or flat ivory p knife, or can be sucked off with a pipette (glass pipe), a crystal having a bulb about three inches from one extremity. The dist

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places one end in his mouth, and, lightly touching the filaments of essential oil with the other, draws them into the bulb.

If the same distilled water is employed several times over, it increases the output of oil. The temperature of the steam must not be too great, or the essential oil is likely to be injured. Time—about three hours. The false bottom containing the stewed leaves is hoisted out, and the mashed mass is useful as a fertiliser. This process applies only to the rose.

Pots of different scented flowers should not be grown too close, as each will become tainted with the other and the virgin aroma of each will become confused. Plots of roses, or jasmine, or tube-roses should be separated by others growing vegetables or other scentless plants. The beds should run north and south so as to get the greatest benefit from the sunshine, which is an important factor in the production of superior oil. As an adjunct to some regular form of cultivation, scent-making should always provide a nice sum of pocket-money. A few sheets of glass and some fat are practically the only necessaries. The work is light and pleasant. Saturated lard is worth from £1 5*s.* to £1 10*s.* per lb. in London or Paris, and the spirit or "extract" is worth 3*s.* 6*d.* per oz. or £3 10*s.* per pint. —*Queensland Agricultural Journal.*

MESSRS. WM. JAS. AND HY. THOMPSON'S ANNUAL INDIAN AND CEYLON TEA REVIEW.

MESSRS. THOMPSON, in their Review, dated June 8, say: The publication in London of statistics relating to the trade of the twelve months ending May 31 brings an opportunity of reviewing the main features of the season now concluded, of recording results of general or particular interest, and of surveying the position and prospects.

The season opened under favourable conditions and with a hopeful outlook. In the background stood the record of many prosperous years; accumulated experience and knowledge, placing planters in position of great advantage; and the signs that our produce was making headway in all the chief markets. In the foreground stood the hopes raised by the remarkable increase in the use of tea at home during recent years; by the abundant capital attached to the Home Trade; and by the evidence that in none of the business centres of the world large stocks were in existence.

The outcome of the season, however, has not been fully equal to its early promise, and it is necessary to search for explanation of a result disappointing to many, though not entirely unexpected by those who a year ago took note of possible contingencies.

Turning, in the first place, to production. As regards India, owing to circumstances which may be considered exceptional, over large areas conditions prevailed which prevented planters from making tea sufficiently good to maintain its value. Taken as a whole, Assam kept up its high reputation—some estates yielding tea of exceptional quality—but results were not so uniformly good as usual, and gardens north of the Brahmapootra have generally suffered from adverse climatic influences. Cachar and Sylhet, on the other hand, temporarily lost ground in respect of quality and value of produce, largely attributable to the effect of the earthquake which was followed by widespread malarial sickness, rendering it difficult to maintain work at the highest point of efficiency—apart from the disturbance of factories, machinery, roads, and waterways. Estates in the Dooars appear to have been less affected; they have given full crops of average quality, if somewhat short of the excellent tea once produced in this district. In Darjeeling with a few exceptions results have been disappointing, notwithstanding the increased appreciation of its tea. Up to the date of the earthquake the gardens were doing well, but subsequently a general reverse was experienced, and although a fair yield was secured, the latter portion of the crop lacked the right flavour, greatly to the detriment of value. By some this was attributed to rapid flushing after excessive rainfall; by others to disturbance of soil during the earthquake, which affected the bushes. The crops from Southern India—slowly growing in volume—have not been of sufficiently good quality to hold their own in competition with other growths, but if managers will pay more attention to the details of cultivation and manufacture, there seems no reason why good tea should not be made there: if good, it will find a ready market here. The season was not a favourable one for estates in the Kangra Valley, but there is a demand for their tea abroad, and buyers will pay a fair price for such as have flavour.

As regards Ceylon:—Production increased, but at a slower rate than hitherto. Upon the whole the crop has maintained its ground in respect of quality, and although it has contained but few of the specially fine sorts originally made, tea of uniformly good make and flavour has been sent from estates situated on the higher levels, possessed of character so distinct from other produce as to make a market for itself. The position of properties which have not given "distinctive teas" and cannot work as cheaply as estates in the low countries seems less assured, and it will be well for their proprietors to make improvement of quality their first aim, in face of the tendency for values to decline for ordinary teas lacking special characteristics, wherever produced.

All growers in India and Ceylon have suffered from the high rate of exchange, which has raised the cost of production without bringing any compensation in the form of higher values in London. An inflated rupee may check further extensions, but the effect of this in retarding increase in production will not be felt for years. Some have also suffered heavy loss on rice, owing to the famine.

These several drawbacks to a successful season, however, would not have been so much felt if the market had not been checked and buyers discouraged by the signs that home consumption was not expanding as it used to do. Useful as our growing foreign trade is, it is still inadequate to do more than stiffen the price of particular kinds—the value of the crop, as a whole, remaining dependent—(1) upon the requirement of the United Kingdom; (2) upon its quality.

The Board of Trade returns show that in 1891 home consumption increased 8½ million lb.; in 1892, 4½ millions; in 1893, 1 million; in 1895, 6¼ millions; in 1895, 7½ millions; in 1896, 6 millions; and in 1897, only 3¾ millions; making a total of 37½ millions in seven years, *i.e.*, from 194 millions in 1890 to 231½ millions in 1897. By contrast with such progress, the increase of only 1¼ million lb. during the months ending March 31 was most discouraging; that the figures at the moment look better is due to recent heavy duty payments in advance.

When writing a year ago, we pointed out some of the causes contributory to the large expansion in the past, and remarked that as they had "been for some time in operation in London and other great centres, if not in the country, it would be unsafe to reckon upon home consumption expanding in the future as substantially as it has done for the past two years." We also showed that the margin for increased use of our own teas at home had become narrow, owing to the extent to which China tea had already been pushed out of consumption. The figures are as follow:—Of the total used in 1891-2, British-grown tea was 79 per cent.; 1893-4, British, 86½ per cent., China, &c., 13½ per cent.; 1895-6, British, 88½ per cent., China, &c., 11½ per cent.; 1896-7, British, 90 per cent., China, &c., 10 per cent.; 1897-8, British, 91½ per cent., China, &c., 8½ per cent.

Apart from these reasons, have any other causes operated to check expansion, and if so, are they permanent in their effect, or merely temporary?

The principal beverages competing with tea are coffee and cocoa. The quantity of coffee and chicory taken for home use in 1897 was 37 million lb. compared with 37½ million in 1896. The quantity of raw cocoa taken was 27¾ million lbs. in 1897 compared with 24½

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million lbs. in 1896, and the increase has continued since January 1, which means that several million pounds weight of cocoa and its compounds have been pushed into consumption, with the aid of lavish advertisement, mainly at the expense of tea. Opinions differ as to its future as a popular beverage. It lacks some of the properties which have made tea almost a necessary of life to the masses, and the price of the pure cocoas retailed is nearly double that of tea. An indirect reason for the comparatively short deliveries of tea last year may be the serious loss of income to the working classes incidental to the labour troubles. Renewed activity in the industries of the Midlands and North should beneficially affect a commodity of which wage-earners are the principal consumers.

Much attention has rightly been paid to fostering trade with other countries. The figures at foot show progress, but not sufficiently rapid to keep pace with the prospective increase in production. Our trade with America, indeed, continues small in view of the energy and capital devoted to the work of introducing our teas there, where we have to encounter the efforts of Japan to fill the opening left by the smaller receipts from China. We regard Russia as a more hopeful market, for the Russian buyers appreciate the best Indian and Ceylon teas and will pay a good price for them, whereas in other outside markets, whether Australian, American, or Central Asian, the demand is chiefly for the cheaper kinds and depends much upon the lowness of quotations. Business with Russia would be helped by the shipment of the fine sorts they like in larger lines, which prove to be most attractive.

The probability, then, seems to be that in the coming year the total supply may be somewhat heavier than the United Kingdom requires, and the surplus a little larger perhaps than the other markets will absorb. Under these circumstances it will be prudent to modify the policy, which has lately prevailed in some districts, of making the heaviest crop possible, irrespective of quality. So long as there was a fair margin of profit this policy was successful; but with higher cost of production and reduced selling value it ceases to be so. Prices have fallen here for such kinds partly because London has become the destination of tea, from all parts, too common to find acceptance elsewhere; and partly from a reason to which we referred a year ago, viz., that the principal vendors who make tea a speciality have mainly built up and are maintaining their trade by selling better tea than the average individual retailer—not by pushing the sale of inferior tea at lower prices. The proof that this is the case exists in the fact that for many years the finest qualities have met with the strongest competition, and in the evidence that those who have bought them are among the most successful traders of the day.

The profitable nature of the distributor's business is a factor of importance, and an element of strength not to be overlooked, as it ensures a buying-power commensurate with the large dimensions of the trade. The confidence with which wealthy buyers handle crops, however, depends largely upon their quality—not merely upon the statistical position—and there can be little doubt that the market has suffered more from the inferiority of the last Indian crop than from larger importations.

It is customary to assume that China tea has been ousted from British and Colonial markets, and need not be deemed a serious rival. Indian and Ceylon teas, however, have made their way—(1) by their superior character and value, accentuated by the deterioration in the quality of China Congou; (2) by the help of their low cost of production. It must not be taken for granted that the Chinese are incapable of reforming their methods and making good tea once more, in order to save a valuable trade now in danger of being lost; and it must not be forgotten that dear rupees with cheap silver place British growers at a serious disadvantage compared with those in the far East. There seems no occasion to fear competition at home from the produce of Java or Japan, but the Japanese will compete strongly with us to keep their trade with the United States and Canada, approaching an annual value of nearly £1,000,000.

Surveying the position as a whole, therefore, we conclude that the wisest policy for growers both in India and Ceylon will be to pay the closest attention to improvement of quality; to check the tendency to pack and send forward to any part of the world tea so common as to lower the reputation of their produce; and to be slow in extending plantations upon soil which has not proved its capacity of yielding good tea. The industry is so thoroughly established and sound that, with ordinary prudence and normal climatic conditions, successful results may be reasonably anticipated for well-manage properties not overweighted with unduly high capital.—*The H. an C. Mail.*

ORANGE-GROWING IN JAFFA.

By REINHOLD PALMER, JERUSALEM.

THAT much-prized fruit, the Jaffa orange, is now so well-know and appreciated in England that it may interest readers of this journa to learn some details of the method of its cultivation.

The name by which this variety of orange is known in England derived from the place where it is cultivated, the growing an prosperous little town of Jaffa on the coast of Syria, so well-known t those who have visited Jerusalem, for which it is the port. In th vernacular the name for orange is "Portugan," doubtless a corruptio of the word Portugal, and is an indication that the orange wa probably in the first instance introduced into Palestine from Portuga but as it is not recorded when or by whom this tree was thus intro duced, the origin of the name can only be a matter of surmis Although not a native of Syria, it thrives on the sandy coast of tha country better probably than anywhere else in the world, the climat conditions—the rainless summer accompanied by heavy night-dew and the winter without frost—being well suited to the growth an development of the fruit. But the culture must of course b supported throughout the long summer by artificial irrigatio Were it not that water to any amount can be procured in ever garden and at a moderate depth, it would be impossible to gro oranges in Jaffa. The whole neighbourhood seems to cover a rive of vast breadth, percolating through the sand *en route* to the se Hundreds of Persian wheels working night and day produce n sensible diminution in the supply of life-giving water.

Several varieties of the orange, such as the round Beladi, the Bloo Orange, the Mandarin, &c., thrive along the coast of Syria, but th oval and almost pipless kind known as the Jaffa orange is only pr duced in Jaffa itself and its vicinity; and this peculiarity, accordin to the native gardeners, must be attributed to the quality of th brackish water used in its irrigation. Until about thirty years ago th oval form was quite unknown, when a native gardener, quite b chance, through careful attention to his trees, succeeded, much t his own astonishment no doubt, in improving his Beladi or Spanis variety of orange into the Shamuti, by which name the Jaffa kind known in the vernacular. By selling grafts from his improve variety to other garden proprietors, he was instrumental in subst tuting the Shamuti for the Beladi orange throughout Jaffa. It is remarkable fact that all attempts hitherto made at growing the ov orange elsewhere than at Jaffa have not been successful; even Sidon and Tripoli on the Syrian coast, where the climate and so seem precisely of the same nature as at Jaffa, all experiments in th direction have failed.

The method of laying out a garden in Jaffa is as follows. The lan having been carefully selected and purchased—preference bein always given to a red sandy soil—the owner will get in his workme and start them on levelling and working up the ground. This is ver thoroughly done; the levelling of the earth being important with view to the future irrigating of the orange trees. The ground is the first instance well ploughed, and then with the object of effect ally removing every particle of weed, the workmen use their hoes turn up the soil to a depth of fully three feet. This expensive proce is very necessary, as the presence of even the smallest root of a wee will prove injurious to the trees and be difficult to remove later o While this work is going on, the proprietor will have fixed upon th spot where the well is to be sunk, and have commenced operation The depth at which water is found varies materially in differe gardens, and ranges from about twelve to sixty feet below the surfac consequently the cost of sinking his well is always more or less matter of speculation to the proprietor. The deeper wells are, ho ever, the exception and not the rule. The system of irrigating is b Persian wheels, simple in construction, cheap, quickly made an repaired; and experience has shown that they are much better adapte for the purpose intended than the steam pump. The whole of th simple machinery is quickly specified and described. A wide co wheel is kept going horizontally by a mule with a sweep; this tur

larger one perpendicularly, which is directly above the mouth of ne well. Over this revolve two thick ropes, and upon these are astened small wooden buckets; one side descends while the other ises carrying the buckets with them, these descending empty, those scending full; and as they pass over the top they discharge the water nto a trough which conveys it into an adjoining tank. The uantity of water discharged within the twenty-four hours depends n the speed at which the mule is kept going, and also, of course, on he depth of the well. An average-sized garden requires the constant abour of three to four mules to provide the necessary amount of ater, the animals being relieved about every three hours.

The ground prepared and manured, the Persian wheel fixed, and ccommodation—of the simplest kind of course—being provided for he gardener and the mules, the proprietor now proceeds to buy oung lemon trees about a year old. These are meant to be used as tocks upon which the orange slips are later on grated; and of hem there is always a fair supply available in the nurseries of the lder gardens. These lemon trees are now planted, under the upervision of the head-gardener, at a distance of four yards apart, nd the most suitable time for this operation is during the months f March and April, before the great heat has set in. A hedge of actus or prickly-pear is planted at the same time round the garden, which in a few years' time grows into an impenetrable mass, reventing the intrusion of man or beast.

The young lemon trees will now thrive without much further ttention, except that they must be carefully irrigated; this is done y a system of small masonry troughs running in all directions hrough the garden, and fed from the tank adjoining the well. The garden is generally divided into four equal parts, each part being rrigated within the course of two days, so that every tree receives ts share of water every eighth day in rotation; and this is considered mple. A small trench is dug round each tree sufficiently large to old its requirement of water, and as the tree grows and needs a arger supply, the trench is enlarged; the amount of water that will ventually be required must therefore be calculated on the basis of he irrigation necessary when the trees are six years old, and may e said to have reached maturity. If the garden is a full-sized one nd contains about six thousand trees, it will be necessary to sink ither two wells or one well sufficiently wide to admit a double set f buckets, thus raising double the quantity of a single set in the ame space of time.

During the winter months the garden is left to itself, the gardener mploying his time in taking the mules to graze, thus saving the ost of feed. The winter (or rather rains) over the garden is weeded, manure is worked into the soil, and the trenches round the trees are remade and enlarged. Irrigating commences about the end of June, nd lasts till the end of October or middle of November.

In order to recoup himself for his outlay while the trees are grow- ing, the proprietor will sometimes arrange with his gardener to grow vegetables in the empty spaces between the young trees, giving him he seed and one-third to one-half the produce of the vegetables in lieu of wages. This system is, however, not considered economical n the long run, as the trees, which are purposely grown in close proximity to each other, really require the whole of the soil; and their development and productiveness is retarded by the growing of vegetables.

The young lemon trees are allowed to grow for two summers before the orange slip is grafted upon them; this operation is performed in the autumn by the head-gardener, who is an adept at this work. After the fourth summer, calculating from the time the lemon stock was planted, a few oranges may appear on the trees; and during the following two years the whole of the expenses of a garden will, as a general rule, be covered by the sale of the orange crops.

It is generally assumed that after the fourth year a garden becomes self-supporting; but it will require two years longer before a return in capital outlay can be expected. After the sixth year, however, a garden that has been well attended to will not only pay all expenses, but give a handsome return as well. The fortunate proprietor will now also have the further satisfaction of knowing that the market- able value of his property represents probably more than double the whole of his outlay. This will give an idea how profitable orange-growing in Jaffa really is to those who can afford to wait a few years for a return on capital. To the native of Jaffa only one form of investment has a charm—the height of his ambition is to own a "Biarah," the technical term for an orange-garden; unfortu- nately for him, however, he as frequently as not launches upon the enterprise without having sufficient capital to see it through success- fully, with the result that he is compelled to borrow money at a ruinous rate of interest in order to meet his current expenses, and finally has to part with his property before he has seen any of its fruit. This explains why most of the garden property is in the hands of the money-lending class, who have had very little trouble in growing the trees.

Once the garden is in full bearing, the proprietor, apart from an occasional visit of supervision, has little to do beyond selling his crop of oranges, paying the expenses, and pocketing the balance.

The gardener in charge receives a fixed wage of from two to two pounds ten shillings per measure only as long as the trees do not bear; once they are in full bearing he is no longer paid by a fixed wage, but receives a share of the produce, generally one-twelfth to one-tenth of the crop. It is also understood that the gardener's wife and family, who live on the premises, assist in the garden-work without extra remuneration; hence the size of his gardener's family is a matter of some consideration with the owner. This system of making the gardener a partner in the produce of the garden works very well, as he thereby acquires an interest in the general upkeep of the property.

It is difficult to calculate the exact cost of laying down a garden. The price of the land varies of course according to position and quality; then the depth of the water below the surface and conse- quent cost of sinking the well cannot be estimated to a nicety. As a general rule, however, a garden containing six thousand young trees will cost from eleven hundred to twelve hundred pounds to lay down complete, with livestock. To this sum will have to be added five years' expenditure (during which period the garden is assumed to be unproductive) at the rate of one hundred and twenty pounds per annum, making six hundred pounds. We have, therefore, a total of eighteen hundred pounds, representing the capital outlay on the garden up to the time that the trees are in full bearing. From now onwards the crop of oranges will have an annual value of from four hundred to five hundred pounds; and this will leave the proprietor, after deducting all expenses for wages, feed of live-stock, taxes, repairs, &c., a clear revenue of ten to fifteen per cent. on his total capital outlay of eighteen hundred pounds.

The risks which the Jaffa orange-grower runs, as compared with those which the grower in Florida has to face, are infinitesimal. The storms that visit the Syrian coast, although of frequent occur- rence during the winter months, are not of such force as to damage the trees; in fact, it is remarkable how very small is the proportion of ripe fruit even which falls to the ground after a storm. This is no doubt due to the fact that the Jaffa orange tree is not allowed to grow larger than a good-sized shrub; and as the trees are placed only four yards apart, they afford each other very considerable protection from the force of the wind. The cactus shrubs also, forming the hedge of the garden, grow very thick and high, and give additional protection from the storms. Blizzards and frosts, which have proved so ruinous in Florida, are quite unknown in Jaffa.

Owing to the good keeping qualities of Jaffa oranges, which enables them to be shipped to distant parts, there is always a brisk demand for them, and the grower has hitherto had very little difficulty in disposing of his crops at good prices. If not exorbitant in his demands, he can almost invariably sell his fruit for a lump sum while the fruit is still green, and before the winter, with its risks of hail, &c., has set in. The shipper who purchases the fruit in this way takes over the whole of the risk of any damage that may happen to it, and he cuts the oranges from the trees whenever it suits him to do so; the contract only stipulating that the garden is to be cleared by the middle of March, as the proprietor likes to see his trees free of fruit before the new blossoms appear.

The whole of the crop of Jaffa oranges does not at the present time exceed three hundred thousand boxes of about one hundred and sixty oranges each, which is a mere trifle compared with Spanish or American crops, and about four-fifths of this quantity is at present shipped to England.

The orange-growing industry is almost entirely in the hands of natives; a few of the newer gardens are, however, owned by Germans and Frenchmen.—*Chambers's Journal.*

MARKET REPORT.

COFFEE.

Messrs. R. J. Rouse & Co's Weekly Coffee Report (June 10, 1898) says:—The enormous supplies in Public sale still continue, but the demand has not been so good and the market closes rather easier.

About 1,400 bags East India were offered and met poor competition, a fair proportion being bought in: one favourite Home Trade mark, however, realized full prices.

Central American kinds, which formed the bulk of the catalogues, met very little attention and the greater part was bought in, the remainder selling at 1 to 2 lower.

The Terme market has again been dull with only a small business passing, and quotations mark a decline of about 6d. since our last.

Messrs. Wm. Jas. and Hy. Thompson's Report of the Colonial Markets for the Week ending June 8th, 1898, says:—Bank rate 3°/₀. Bombay Exchange closes at 1s. 3 1/16d. Brazil Exchange 7⅝d. Rupee paper 3½°/₀ 62⅜. Silver 27¼d. per oz.

Public sales which were suspended on the 24th May for the Whitsuntide holidays were resumed on the 2nd inst. Supplies continue heavy, and with a fair demand the bulk has been disposed of at about steady prices for all kinds, fine being well competed for. Brazil kinds are steadier, and the Rio Exchange shows a material advance.

Daily receipts averaged 6,800 bags in Rio and 5,400 bags in Santos.

Futures: Since our last prices have fluctuated, closing steady at about 3d. below the late highest, viz.:—Good average Santos in Havre, September delivery fcs. 37, in Hamburg pf. 31, and No. 7 low ordinary Rio in New York $5.85.

To-day's London official quotations are:—

	June	July	Sept.	Dec., '98.	Mar.	May, '99.
SANTOS ...	30/3	30/3	30/9	31/3	31/9	32/

We quote:—

Ceylon, mid. to good mid.	96/	@107/	
Do. small to low mid.	80/	„ 93/	
East India, mid. to good mid...	77/	„ 92/	
Do. small to low mid.	60/	„ 75/	
Guatemala, mid. to fine...	70/	„ 100/	
Do. good ord. to low mid...	54/	„ 68/	
Salvador, good ord. foxy greenish...	41/	„ 43/	
Costa Rica, mid. to fine...	72/	@107/	
Do. ord. to low middling.	46/	„ 70/	
Jamaica, good to fine ord.	33/	„ 51/	
Do. greenish to fine colory...	70/	„ 125/	
African ...	26/	„ 29/	
Columbian, ordinary ...	35/	„ 43/	
Do. good ord. to low mid...	44/	„ 64/	
Do. mid. to fine...	65/	„ 93/	

Receipts in Brazil to 8th June compare as follows with previous years:—

	1897-98. Bags.	1896-97. Bags.	1895-96. Bags.
RIO	4,164,000	3,397,000	2,259,000
SANTOS	6,028,000	4,945,000	2,937,000
	10,192,000	8,342,000	5,196,000

In Sale—

5 casks and tierces 6 barrels Plantation Ceylon ... 59/ @ 108/

1,229 bags East India.
- 559 bags Mysore, partly sold ... 57/ „ 100/6
- 451 bags Coorg, chiefly sold ... 54/6 „ 98/
- 219 bags Neilgherry „ ... 55/6 „ 92/

13,577 bags Costa Rica, part London cleaned, nearly all sold. 35/ „ 108/
3,907 bags Guatemala „ „ „ ... 39/ „ 92/6
4,592 bags Salvador „ „ chiefly sold ... 41/6 „ 96/6
1,282 bags Nicaragua, „ „ „ ... 41/6 „ 107/6
667 bags Venezuelan „ „ partly sold ... 47/ „ 80/
2,340 bags Columbian „ „ chiefly sold ... 43/6 „ 92/
77 bags Peruvian damaged ... ... 36/ „ 48/6
277 bags Mexican, chiefly sold ... ... 52/ „ 67/
601 bags Vera Paz and Coban, part London cleaned, partly sold ... ... 83/ „ 90/
14 bags Honduras ... ... 67/6 „ —
230 bags Ecuador bought in.
88 bags Singapore Liberian bought in.
8 casks 3 barrels Straits Liberian, cleaned in Ceylon ... 24/ „ 31/
7 bags Penang Liberian bought in.
10 bags African Liberian bought in.
92 packages Mocha bought in.
237 brls. 431 bags Jamaica, part London cleaned, good part sold ... ... 29/6 @

Landed last week ...2,014 *tons. Deliveries* ... 797 *tons. Stock*...17,521
Do. last year ...1,224 „ „ ...1,109 „ „ ...14,323

THE UNITED STATES.

1st June.

	1898.	1897.
Stock	57,120 tons	40,530 to
Afloat	17,700 „	22,350 „
Visible Supply	74,820 tons	62,880 to
Value No. 7	6½ cents.	7⅝ ce

April. 1st Jan. to 30th A

	1898.	1897.	1898.	1897.
Imports ...	42,060 tons	27,410 tons	179,010 tons	140,830
Deliveries ...	31,180 „	24,180 „	175,890 „	132,180

BRAZIL.

Stocks 31st May.

	1898.	1897.
Rio	187,000 bags	229,000
Santos	329,000 „	268,000
Total ...	30,350 tons	29,240

Receipts 1st July, 1897, to 31st May, 1898.

Rio	4,118,000 bags
Santos	5,991,000 „

Exported 1st July to 31st May.

	1897-98.	1896-97.
Rio to Europe	1,230,000 bags	815,000
„ the States, &c.	2,930,000 „	2,155,000
Total from Rio ...	4,160,000 bags	2,970,000
Santos to Europe	4,490,000 bags	3,250,000
„ the States	1,325,000 „	1,465,000
Total from Santos ...	5,815,000 bags	4,715,000

LONDON.

Quotations 1st Ju

	1898.	1897
Middling Plantation Ceylon	99/	103/
Fair Channel Rio, floating terms	31/	35/
Good channel do. do.	33/	39/
Good average Santos do.	31/	36/

WORLD'S VISIBLE SUPPLY.

31st May.

	1898.	1897.
Europe	221,140 tons	155,660 tons
United States ...	74,820 „	62,880 „
Brazil	30,350 „	29,240 „
Total ...	326,310 tons	247,780 tons
April 30th	337,890 tons	254,790 tons

JAVA.

THE GOVERNMENT CROP.

1898.	1897.	1896.
131,000 bags*	356,000 bags	274,000 bags

* Latest Estimate.

SUMMARY COMPARED WITH LAST MONTH.

European Stocks	5,910 tons	Increase.
„ Visible	8,860 „	Reduction.
United States Stocks ...	10,880 „	Increase.
„ Visible ...	3,660 „	Reduction.
Brazil Stocks	940 „	Increase.
World's Visible	11,580 „	Reduction.

PLANTING OPINION.

A WEEKLY JOURNAL

WRITTEN BY PLANTERS FOR PLANTERS.

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ADVERTISEMENTS.—From the 1st October, 1897, the charge for line advertisements will be: 4 as. per line for the first, 3 as. for the second, and 2 as. for the third and succeeding insertions. Five-line advertisements from Subscribers will be inserted for three issues for one rupee; non-Subscribers will be charged two rupees.

DOMESTIC OCCURRENCE.—The fee for inserting a domestic occurrence will be *One Rupee* for each insertion, payable in advance.

N.B.—Remittances should be sent to the Manager, "Planting Opinion," 11/12, Second Line Beach, Madras.

IMPORTANT NOTICE.

The Business Offices of this paper having now been removed to Madras, all remittances should be made payable to the Manager of *Planting Opinion*, 11 and 12, Second Line Beach, Madras, who will also attend to all advertisements, &c.

Letters to the Editor should be addressed to Coonoor, as usual.

SEASON REPORTS.

TO OUR SEASON REPORTERS.

Please post your next reports to reach Madras on Friday, the 15th July, 1898.

Season Reports should be sent to the Printers, Messrs. Addison & Co., direct, and not to *Planting Opinion* Office.

Coorg.

Pollibetta, *7th July.—Weather.*—The "break" still holds sway. Looks as if the monsoon is going to give up the go by this year. We are getting a little rain every day. The heaviest was ·50 in. on 4th. *Crops.*—This weather has been very good for crop. The berries have increased very much in size and could now stand any big onslaught of wet. *Plant Diseases.*—Coffee looking very healthy just now. The effect of this weather may be to bring on an early attack of "leaf," but it is best over soon. May it might cause two attacks! Borer has been bad in parts of the Province, but not so much hereabouts. *Labour.*—Stationary. *Health.*—Good.

PLANTERS AND EXCHANGE.

I. Some Points for High Exchange.

It is not the intention of the present article to give a comprehensive statement of the many arguments that have been brought forward in favour of the maintenance of Exchange at a level of 1*s.* 4*d.* per rupee, or higher. There are far too many points of this kind to be dealt with in a brief article. Hence, the present intention is rather to mention one or two of the leading arguments, and then to dwell more especially on such as have been put forward *with special reference to the interests of the planters in India.* This appears to be the proper line for a paper such as this. It has not so much to do with the question of how Government is to raise revenue, as with that of how the planter is to

achieve prosperity. The main argument in favour of a rise in Exchange is that it would lessen the amount payable by the Government of India for Home Charges, and would thus lighten taxation. Another argument is that low exchange hampers the Import trade of the country. The latter point has been stated but diffidently of late years, however, not so much because it opens the question whether India need seek to have imports at all instead of making the best of her own products, but because it disarms opposition to the counter argument: if high exchange is favourable to Imports, low exchange must be favourable to Exports. This would be a dangerous admission for the high-level advocate, seeing that the Export trade of India is considerably more important than its Import trade. We may leave points of revenue and taxation to the press in general. As regards the arguments that more nearly affect our readers, we may appropriately quote words uttered by the Hon'ble Mr. (now Sir) James Mackay at a public meeting held at Calcutta in 1892 in connection with the Indian Currency Association.

Mr. Mackay observed with regard to tea prices that taking the level of Calcutta prices as 100 in 1873, in 1880 it was only 82, in 1885 only 55, and in 1892 only 41. He then added: "Some tea people will tell you that the fall in the price of tea is due to over-production, not to low Exchange. But can they point to any glut of markets in support of this theory? Or can they say that low exchange has done anything to keep up prices?" To many of our readers questions such as these will appear trivial. Planters will say in many cases, "We want no *theory* in matters of this kind, we have had practical proof that in times of low Exchange we are prosperous, and in times of high exchange we are not." Men like Sir James Mackay cannot, however, be dealt with in this offhand manner. They make statements, and call them arguments; they expect arguments in reply, and dub these mere statements whenever possible. Now, the speaker whose words we have already quoted said on the same memorable occasion: "Some people interested in tea tell you, when they sell their tea at home if exchange is low, they are able to buy more rupees with the proceeds, and that the rupees so far satisfy their tea garden coolies and their managers and assistants just as well at 1*s.* 3*d.* as at 1*s.* 6*d.*, and that, therefore, they rather favour a low rupee. They admit frankly enough that it may be a little hard on the cooly, and on the European staff, to give them the same number of coins when these coins have declined in value, and they also admit that the time will come if the rupee goes on depreciating, when the cost of labour and management will be bound to rise. But in the meantime they say it has not done so." Mr. Mackay proceeded to state that a mistake was made when it was thought that as good a sterling price was got for tea with exchange at 1*s.* 3*d.* as with exchange at 1*s.* 6*d.* "The course of prices proves," he said, "that such is not the case." Not satisfied with th Mr. Mackay next remarked: "But even if the sterling pr did not decline, and exchange went down to a shilling, a coolies' wages did not rise and the European staff could got to work for the same rupee salaries, what about t value of tea property? Suppose a man brings out £10,000 1*s.* 6*d.* and puts it into a tea garden, the tea garden costs h a lakh and thirty thousand rupees. He goes merrily helping the rupee in its downward course, because "i good for tea," and the rupee goes down to a shilling. and bye the time comes when he has had enough of In and he wants to gather his assets under his own eye England, and he sells his garden. Now suppose he gets own money back again, a lakh and thirty thousand rupe when he comes to transfer that money to England, inste of his old original £10,000, he finds he is the happy possess of only £6,500."

We quote these remarks at some length because they g a high-level view of the matter with special reference to t planting industry. Arguments of a similar kind are lik to be brought forward in London before the Curren Committee of 1898. They are arguments that must be m if low-level advocates are to win the day. These gentlem must be prepared to answer statements such as the abov they must clearly show how largely such statements a founded upon and surrounded by presumptions and suppo tions. When informed that falling Exchange merely acts a *temporary* stimulant to the price of tea or coffee, th must be prepared with a reply. In our next paper propose to suggest some points that would be natura embraced in such a reply. The exchange question can be settled from the narrow point of view of a particu community or industry; but if each such community industry would deal with the problem as it affects its o interests and not wander into the wide arena of gene discussion, the settlement of the question should be grea facilitated.

WHERE TO PLANT RUBBER.

IT is in starting a new industry like that of rubber-growi that the practical planter of say coffee, tea, or indigo, fe himself hopelessly at sea. It is at a juncture like t especially that he finds himself so seriously handicapp by his ignorance in botany. What soil shall he choo what aspect, what elevation? It is often of only part use to refer to the countries of which the plants in are qu tion. In nine cases out of ten the information supplied fragmentary and incomplete, if not actually unreliable. prove this we have but to instance the well-known care tea. Yet in the absence of a knowledge of botany, t planter desirous of experimenting has no other sources information open to him.

Let us glance at the method in which a man with ev a slight acquaintance of that fascinating science would to work. The plant in question belongs to a given natu order. Of that order there are doubtless some specime at least represented in his district. He seeks to disco specimens of the indigenous flora most nearly allied to

particular species with which he desires to experiment. He will find out the localities where they thrive best, examine the soil and situation, and finally will have become possessed of a sometimes very accurate knowledge of the requirements of his new product. Where indigenous plants of a given order thrive well, it is safe to suppose that nearly allied exotic specimens of the same order will also thrive.

Suppose we apply, as far as our imperfect knowledge will allow, this method of working to the choice of land for rubber plantations. The first thing to do is of course to decide upon the particular kind of rubber you wish to try. For there are many plants that yield rubber, but are, botanically, widely separated from each other. However, we shall suppose that the new favourite Para, *Hevea braziliensis*, is the one to be taken up. Now Para belongs to the natural order of Euphorbiaceæ, of which one of the commonest and well-known representatives is the well-known "Nelli kai" tree, *Phylanthus emblica* and perhaps still better known castor oil plant, *Ricinus communis*. That valuable but little-known plant, *Croton tiglium*, is also of the same order. To it also belongs another variety of rubber, the unprofitable Ceara, *Manihot glaziovii*. It is not difficult even for the unskilled observer to recognize plants belonging to this order. A very general distinguishing point, and one easy to grasp, is that the leaves of nearly all Euphorbiaceæ possess glands at the base of the leaf, just where it joins the stem. It is true the glands are not the most conspicuous feature of the leaf, and in fact require some little search, in certain cases, to discover. More trustworthy as a guide is it to remember that the stile or pistils, *i.e.*, the female organs of the flower, remain on the fruit till the last. Of pistils, most species of this order have three, though some have two, or only one.

Now here we must stop for a moment, for knowledge is halting. The reader must now take up the work himself, aided by the services of the nearest available botanist. For an order possesses species wide indeed from each other in their habits and requirements. For instance the two rubber trees belonging to this order, Hevea and Ceara, seem to thrive in very different localities. The former wants moist, rich soil with a high temperature, the latter does best in dry stony soil at any altitude up to 5,000 feet. On the plains, indeed, it threatens to outstrip even the *babool* in clothing barren lands no other tree can live on.

Another important species of rubber, *Castilloa elastice*, belongs to a separate order altogether, the *urticaceæ*, which comprises the whole family of figs, of which India possesses so many species. A very well-known representative of this order is found in the charcoal tree, *Trema orientalis*. Most *urticaceæ* have rough leaves, similar to those of the rhea or nettles. Their flowers are either borne in bunches or are catkin shaped. Of the former kind of flowering, *i.e.*, in bunches, the charcoal tree is a good example. Hemp, the mulberry-tree, figs of all sorts, the jack, and the bread-fruit tree are also comprised in this group, so that no fear need be felt as to lack of material on which to work. Rather will it be found that the very wealth of specimens will increase the difficulty of the work.

NOTES.

Potatoes free from disease. A correspondent of the *American Agriculturist* writes :—For the past three years I have used sulphur when planting potatoes, rolling the sets immediately after being cut in dry sulphur-powder, which adheres to the tubers, which are planted the same day. Since following that method I have had no scabby potatoes.

Apple-growing. Elsewhere we insert an interesting article on apple-growing in New Zealand. In these days it is not impossible that the impoverished planter will find that a few extras in the shape of fruit or other products will do a lot to keep the pot boiling. If no spare land is available, interplanting among the staple itself is always practicable. And as to the crop of fruit, remunerative prices would always be obtained from contractors.

Tea to the fighting Yankees. It was only to be expected that Mr. Chamberlain would put his foot down on the proposal of the Ceylon Association to send the American army a free gift of tea to keep up their spirits during the war. It would have been a grand advertisement, and it is a pity it cannot be carried through *sub rosâ*. There are more ways than one of doing the thing, though we fancy nothing will be attempted. The Minister for the Colonies has such a very great deal to say, you see, on all Ceylon affairs.

Darjeeling tea plucking. It will not be a little disturbing to high elevation tea planters to learn how very fine Darjeeling planters now have to pluck to keep up their prices now-a-days, writes a Darjeeling correspondent to the *Planter* :—

> Everyone is crying out for finer quality teas, but where is it to end? We came down some years ago in the plucking, from four leaves to three, and then again lately from three leaves to two, which system is very vigorously enforced now. It is said we must pluck still finer, and I suppose it must be one leaf and a bud which will only give half quantity, but then again after this the—?

Male coffee trees. It is a common idea amongst planters that in every nursery one is sure to find a certain proportion of so-called male trees. These are distinguished by their long and narrow leaves. It is held that such plants never bear, and should consequently be destroyed in the nursery. Botanists who have heard of this idea are very curious to obtain blossoms from this tree for examination. But somehow or other, fairly common as this "male coffee" is said to be, specimens have never been obtainable. We should be much obliged if one of our readers would kindly forward us a flowering branch, as we wish to submit it to a botanical expert for examination and report.

Saltpetre. It has always struck us as very curious that South Indian planters, with their fondness for expensive English chemical manures, should not have used the crude Indian saltpetre more than they have. Now, in talking of saltpetre, we do not refer to what commonly goes under that name in South India. *That* is nothing more than muriate or sulphate of potash, and

contains not an atom of nitrogen. The true saltpetre is *nitrate* of potash and contains a large percentage of nitrogen. It is very cheap, about 80 rupees or so per ton, compared with the expensive nitrate of soda. A suitable combination of saltpetre, wood ashes and fine bone meal would make a perfect and cheap manure.

"The Planter." We are glad to see our Calcutta contemporary in a new suit of clothes, cut so as to allow a little more freedom of movement. The *Planter* has entered its sixth year now, and trousers have succeeded the knickerbocker and petticoat stages. We wish it steady and healthy growth, and in doing so indorse its remark that "further increased success must depend largely upon the interest which planters themselves take in the paper—upon the extent to which those concerned assist us with their arguments and information, and so create that interchange of thought and knowledge from which all real advancement springs." The same words might be employed just as appropriately with reference to *Planting Opinion*.

Fruit-preserving by dry-air. Several interesting experiments in fruit-preserving by means of the dry-air process have just been completed by Dr. Brown, bacteriologist to the Agricultural Department of New South Wales. Apples, grapes, pears, and plums put in dry-air jars over two months ago were found to be in first-rate condition when opened, retaining their firmness and flavour in an exceptional degree. The same class of fruit kept in a cool chamber, and packed on green pea-shells simultaneously with the other, was soft and tasteless, and another parcel, which was simply kept in a cool atmosphere without any special treatment, had absolutely decayed. The result of the dry-air experiment is regarded as most satisfactory. Further trials of the system on a more extensive scale will be made.

Fruit-growing in India. It is good to learn that the possibilities of the Indian fruit trade are attracting widespread and general attention in Europe. In an interesting article on the subject, *Indian Gardening* says it has received enquiries from places so far distant as St. Petersburg and Brussels. If our British or Indian capitalists are not very quick about it, remarks our contemporary, we shall probably find at no distant date a Russian, G man or Belgian fruit syndicate established in India. Bei first in the yield, they will have very soon the enti monopoly of the fruit trade.

By the way, we are surprised to find our usua well-informed contemporary reproducing such inaccura information on edible and poisonous mushrooms as contained in its issue of the 30th ultimo. The Editor shou know better than to endorse the erroneous ideas about called tests, such as telling by the smell, by the blackeni of silver, &c., &c.

A war tax on bananas. Some idea of the enormous tra in bananas (plantains) which h developed in tropical America m be gathered, writes *Indian Gardening*, from the fact th growers of other species of fruits are urging Congress levy a war tax of 25 cents per bunch on bananas, becau they regard bananas as a formidable competitor with oth fruits: so strong, indeed, that the growers of other fru urge that they cannot make a living wage out of them consequence of the banana competition. The bana growers, on the other hand, argue that any tax on th crops would press hardly on them, as cargo after cargo them arrives in an over-ripe condition, upon which thousan of dollars are continually lost. Now compare the fr industry in the United States with that in India. Wh we have been consistently urging is that a large fortu awaits any enterprising European who first puts his capi and energy into the development of the fruit trade of Ind

Investigation of Malaria. The Kurseong correspondent *The Planter* says that Surgeo Major Ross, of mosquito fame, h been up in the district making investigations on malar but was obliged to leave owing to the coolies taking hi for one of the dreaded inoculators. The same correspon ent is guilty of a slight "derangement of epitaphs," ho ever, when he alludes to the she-mosquito as "t *decimator*" "(*sic*)" of the fillaria of elephantisis "(*sic*) and the plasmodia of malaria, and consequently "one of t greatest enemies of mankind." He adds:—"It is report that many of the bad cases brought to Dr. Ross as mala were anchylostomaisis, scarcely recognised in this distri before, and we believe that it is much more prevalent th is imagined not only in the Terai but throughout the hil and that the European population is not entirely free fr it. The spreading of anchylostoma through the tea di tricts deserves to be very carefully watched, as not on has it proved capable of decimating whole villages Ceylon and Egypt, but of increasing the death-rate garden coolies to an appalling extent."

The Home Market. *Coffee.*—During May the world visible supply has decreased to t extent of 11,580 tons, writes the *P. M. Review* of 11th Jun but there has been in the same period an increase in bo the European and United States' stocks. This would see to point to larger arrivals at the different ports where t distribution for consumption takes place, and that t producing countries have been freely selling their rece crops. The heavy arrivals here have again been press forward at auction, but, as is often the case during Jun

COFFEE SHADE TREE.

Sun-dried Erythrina Lithosperma loppings, &c., contain per ton:—

61·50 lbs. Nitrogen.
57·38 „ Potash.
14·92 „ Lime.
13·68 „ Phosphoric Acid.

Seed cured under Messrs. Sutton and Sons' advice.

Orders should be booked early for the 1898-1899 crop of seed from the parent trees of above analysis at Rs.6 per pound containing about 2,000 seeds. *Germination guaranteed.*

Only thornless variety extant, and is not procurable anywhere save from the

MANAGER, ARIENKOW ESTATE,
Shencottah.

there has been a decided falling off in the demand, and quotations have in consequence, in some cases, been rather in buyers' favour. Costa Rica and other Central American sorts have been the principal kinds offered, the few parcels of really good fetched full values, but common qualities were often from 1*s.* to 2*s.* cheaper. Hardly any East India has been offered; in fact, little more can now be expected, and merchants are in consequence asking full prices. The terminal market has been quiet, and values are about 6*d.* cheaper. The Dutch Trading Company have advertised their next sale for Tuesday, when 20,500 bags and 28 cases will be offered against 17,107 bags and 42 cases at the corresponding sale last year.

LONDON COFFEE RETURNS.

—	HOME CONSUMPTION.		EXPORT.		STOCK.	
	1898	1897	1898	1897	1898	1897
For the week ended June 4, 1898.	Tons. 269	Tons. 361	Tons. 528	Tons. 748	Tons. 17,521	Tons. 14,323
For the 21 weeks ended June 4, 1898.	6,755	6,614	11,494	8,942	—	—

OFFICIAL STATISTICS OF THE COFFEE TRADE OF THE UNITED KINGDOM.

	1 Month ended May 31.			5 Months ended May 31.		
	1896	1897	1898	1896	1897	1898
Imports ...	107,814	118,623	174,539	456,573	517,963	578,132
Home Consumption.	20,935	24,376	22,743	108,008	111,803	111,588
Exports ...	313,889	259,238	279,776	1,004,083	714,026	899,111
Total Deliveries ...	334,824	283,614	302,519	1,112,091	825,829	1,010,699
Stock on May 31 ...	280,000	381,000	433,000	...	...	...

Indian Tea.—The supply has been moderate, and as the demand has shown improvement, prices for all grades are firm, while, in some cases, advances have been established. The Teas showing an advance are those worth from 9*d.* upwards, the quantity offering being comparatively small. There is not likely to be any important addition to the stock of these kinds for a month or two, and a very firm market is anticipated. The values of the lower quantities, and especially Tea for price, are also firm, and clean sweet Tea is not obtainable in any quantity under 5½*d.*, while the bulk of the supply consists of Tea above this price and up to 7*d.* to 8*d.* Of the few lots of new season's, the Assams were fairly good for first arrivals, but the Darjeelings were of but moderate quality, being deficient in flavour; however, they were well competed for and fetched prices, in most cases, much above valuations. Advices continue to report the outturn both from Cachar and Sylhet as being very deficient in consequence of the severe drought prevailing, and it is quite probable that the estimate of the crop for these districts will have to be materially modified. At the public sales 10,500 packages were brought forward, including 473 new season's and 1,970 withdrawn.

Ceylon Teas.—The first sale since Whitsuntide took place on Tuesday last, when only a comparatively small quantity was brought forward, and, notwithstanding the poor selection of desirable Teas on offer, firm prices ruled throughout. The common grades of Pekoe and Pekoe Souchong were again in demand, and the latter in many cases showed a slight advance on previous values. Medium Broken Pekoes were still in small supply, and difficult to obtain, while the better sorts were firm and in some cases rather dearer. The larger exports from Colombo are now beginning to arrive here, and the sales advertised for next week will be considerably in excess of those that have taken place for some time past. This should lead to more reasonable prices for the medium and lower grades, when a good business may be expected to be done in them. At the public sales 18,900 packages were brought forward, of which about 1,600 were withdrawn.

LETTERS TO THE EDITOR.

TO CORRESPONDENTS.

["VIA PALGHAT."—Sorry we can't quite see our way just now to engaging the staff you mention. "W.T.H.H."—Are you trying to be funny? If so, you might give your name and address. We have a vacancy here for you."—ED.]

DISEASED COFFEE SEEDLINGS.

SIR,—I am sending you, by this post, a few coffee seedlings and shall be obliged if you can tell me the cause of their state. I have large nurseries (baskets and beds) and continually find patches of 8 and 10 seedlings like those sent you. Thanking you in anticipation.

FOREST.

[We have submitted the specimens sent us to an expert, and shall publish the report in due course.—ED.]

SMALL-POX CURE.

SIR,—As small-pox often breaks out in this district, I send you a cutting from *Liverpool Mercury*, etc., etc.

The *Liverpool Mercury* of March 25, 1877, gave the following as a cure for small-pox:—"The worst case of small-pox can be cured in three days simply by the use of cream of tartar. One ounce dissolved in a pint of warm water, drunk at intervals when cold, is a certain never-failing remedy. It has cured thousands, never leaves a mark, never causes blindness, and avoids tedious lingering."

"D."

SEED WANTED.

SIR,—Can you let me know where I can get seeds of the sandal tree; also of logwood, which was mentioned in one of the issues of the *Planting Opinion* as a substantial hedge? I also require seeds of American cotton plant, which is a perennial. If you could kindly recommend to me any gentleman from whom I could procure all these I shall feel obliged.

MIRZA MEHDY KHAN.

SAIFABAD, HYDERABAD, DECCAN,
27th June, 1898.

[Apply Mr. J. Cameron, Curator, Mysore Botanical Gardens, Bangalore.—ED.]

A PERTURBED READER.

SIR,—I would like to know if anything more has been found out about Mr. L. W. Grey's "Improved Coffee Seed" that we read so much about in January, 1897.

We have heard no more for many months from the wily "Gas-tag," the learned "Normanton" and other four correspondents.

Are there no planters in India to write for a paper *for Planters?*

I am afraid it is like the Irish Naturalist who, in enumerating and describing the snakes in that country, began by saying "there are no snakes in Ireland," so there are no planters in India!

SIC GLORIA MUNDI, ETC.

KADUR DIST., }
26th June, 1898. }

TO TREAT A SIT-FAST.

SIR,—Can any of your readers instruct me in the treatment of a sit-fast on a pony's back? I shall be immensely obliged if some one will, as I've exhausted all the treatments I can think of. The "history of the case" is this. The pony was sold to me by a man who represented the sit-fast as a gall caused by a native saddle used in breaking in the pony to saddle, and which would be better in a week or so, with the application of a little Elliman's. It was then a swollen lump of about the size of a small hen's egg. The treatment he advised did not seem to do much good, and after about a month and a-half, it was lanced and let out a lot of matter and stuff. I then applied Condy's fluid to the wound and kept wet bandages of it on all day; this together reduced the lump to about a quarter of the size and took away much of the pain. When the wound healed up, there still remains a perceptible lump which is soft and seems to contain matter still, but which after poulticing for three days will not come to a head, and I am now rubbing in Elliman's more for the sake of doing something than with any hope that it will do any good, so I'm at the end of my tether and write in the hopes that you may number among your readers some one who will be good enough to give me the benefit of his knowledge and tell me what I ought to do. I've been told the best thing I *can* do is to get rid of it to some chap who is as big a fool as I was to buy it, but I don't want to do that just yet if I can help it, and then there might be difficulty in finding such!! It was under exceptional circumstances that I was "bad" so badly, into which there is no use entering here.

Viâ PALGHAT.

NOTES FROM CALCUTTA.

SIR,—I notice in a late issue of your paper that leaf disease [There is leaf disease and leaf disease. The American variety seems much like trees, but is named differently.—ED.] has got well into the Brazils, Costa Rica, the West Indies, &c.

[We omit your remarks here *re* Ceylon planters, as it would tend to keep alive the erroneous impression that we have a "down" on Ceylon planters.—ED.]

However "it is an ill wind," &c.; if coffee crops are reduced to one-fourth in these vast countries, it will be good for Southern India, as our American cousins will have to take their coffee, and though prices of coffee are good, they may run up much higher.

The rains have failed so seriously in Cachar and Sylhet that many tea gardens will seriously suffer, through the light rainfall, caused by the Nagahs and other Hill tribes being allowed to destroy thousands of acres of virgin forest yearly for *one* grain crop. With so wretchedly administered a district Forest Department to *conserve forests* is a farce. With t minished rainfall, it is contemplated to plant coffee in lieu tea as a 70-inch rainfall, four months cold weather down 50° at night, with heavy dews and rich soil-planting cof will be a move in the right direction already started in Assam

How funny it is for your correspondent in the issue of yo paper of the 18th instant to deem *his* method of protecting ste land from washing is *original*. I call it "gaulting," and did on the Shevaroys in 1876. And early in the eighties wr both to Ceylon and S. India planting papers commending it the planters. He is welcome to suppose it original. I, howev so far back as 1876, I learnt the method from the late Colo Scott and Capt. Godfrey in the sixties. I can strongly comme it to the writer in your journal.

CALCUTTA, EDGAR QUARME.
23rd June, 1898.

GENERAL ARTICLES.

APPLE-GROWING IN NEW ZEALAND.

WHILE the Tasmanian grows apples in fifty-acre blocks, a gets his neighbours to do the same, the New Zealand fru grower has generally planted out but a few acres, and those a large number of varieties, ripening at different times. Th fact accounts largely for the higher commercial standing Tasmania as an exporting colony. But New Zealanders a beginning to realise the disadvantages of their system. A rece offer of their Agricultural Department to send a shipment apples to England, and give the growers a guarantee of a pen per pound clear, disclosed the weakness of the situation ve clearly. Although the Canterbury growers succeeded in co pleting a shipment in March last, a similar effort in the Auc land province to raise 50,000 bushel cases had to be abandon owing, principally, to the impossibility of getting contributio in quantities worth handling.

New Zealand apples are probably the best in the world, b the men who grow them are mostly small settlers, who ha neither the means nor the experience necessary to develop t industry. The Government pomologists have lately been urgi the growers to adopt a different system. The energetic M Blackmore has this season been visiting the orchards of bo islands, and his advice may be summarised in a few wor "Plant late apples; nothing but late marketable apples. Pla acres of them. Plant only a few varieties, and get your neighbo to plant the same varieties. Then it will be worth while for dealer to come into your district and buy the crop, instead being confronted with never more than thirty or forty cases a sort at any time during the season."

Mr. Blackmore, being a vigorous advocate of spraying, is n dismayed at the codlin moth. In dealing with this pest a Ca fornian pump called the bean is coming into great favour. was first sent to New Zealand by Professor Wickson, aft whom the latest and best of all Burbank's wonderful Japane plums is named. Its cost is £7 10*s*. Its good points are i enormous pressure per square inch—on which the force a fineness of the spray depend—and the fact that it can be work single-handed, the operator being free to hold the nozzle un the compressed air cistern needs refilling. The codlin moth la her 200 eggs in the eyes of 200 apples, and the progeny's chan for life depend on his getting through the skin of the apple at spot where the spray has not fallen. The liquid used is dilut

Paris green. If the grub which hatches from the egg should get through the apple skin without tasting the Paris green, he makes a bee line for the pips, without which he cannot develop. Having sampled these and filled the core with excrement, he eats a way out through the side of the apple, and makes a cocoon in a crack in the bark of the tree or some other sheltered place, where, if it is not near winter, he becomes a moth in about a fortnight, and the business is repeated. Leading growers, in addition to spraying, tack a narrow strip of sacking round the stem of the trees. These attract the grubs, and about every ten days they are examined and the grubs are killed.

In pruning orchard apple trees and pear trees the twelve-branches or Tasmanian system is considered the best. The result of the system is to make the tree open in shape and productive of heavy crops, good fruit, and fruit that can be easily reached. For shaping on this method yearling trees are planted. Three shoots are grown during the first season. These are pruned back to three or four buds in the winter, and two shoots from each are grown in the next season. The following year the process is repeated and then there are twelve branches. The tree is then complete. Future pruning has the object of confining all the fruit to these branches, and summer pruning effects this purpose. Just before the crop is gathered, the shoots which grow out all along the twelve branches with any other laterals are shortened to four or five buds. These short stumps do not grow again, but become fruit spurs. The terminal shoots of the twelve branches, however, are always allowed to grow unchecked till the winter. They are then shortened to induce a new bud to push into growth at the end with renewed vigour next spring. Trees of a spreading habit are cut to an upper bud, and those of upright growth to an outer bud. The Tasmanian orchards pruned on this system or a modification of it present a very effective sight, with the long rows of trees each throwing out its twelve long arms of fruit. The fruit-packer greatly appreciates this style of pruning, too, and it is found that the more the fruit is borne on the main branches—as it is bound to be by this plan—the finer it always is. And it will weather much heavier winds.—A. G. S. —*Field.*

GONDAL FLUID FOR WHITE ANTS.

In No. 18 of the 1897 (published in 1898 and just issued) of the *Agricultural Ledger,* we find some interesting notes on white ants. Practical men, planters and ryots alike, have always held that white ants will attack living plants, whereas scientists, or pseudo-scientists, have gone to considerable trouble in reasoning that they do no such thing. That in fact they only feed on the dead dissues of plants, following up the injury caused by borers and other insects. Among other evidence, that from the Settlement Officer of Balaghat, Central Provinces, is worth noting :—

> The cause that led me to this perception of the truth is that I have attempted to raise a row of half a dozen mango trees close behind my bungalow, and I have had a number of the saplings die, they being in most cases attacked by white ants. I have dug up three of the trees in different stages of the white-ant disease. One of the plants was almost dead, and it would have been difficult to prove that the white ants were not innocent scavengers, removing useless dry wood. Another tree was half-dead, and the theory that exonerates the white ant from the charge of devouring living timber could only be maintained by crediting the termite with a marvellously accurate prophetic instinct that told the scavenger which of the trees were already doomed to die and might be removed as useless, for the tree was not yet dead but only likely to die shortly. In the third case the tree still looked quite green, save for a suspicion of unhealthiness about some of its leaves, and on digging it up I found that its roots had been eaten through in places by white ants, and that a detachment of the voracious termites was actually pushing its way up the heart of the sapling, eating its path through perfectly good, juicy wood. The sight of a channel about $\frac{1}{8}$th of an inch wide thus eaten out up the very centre of a sapling appeared to me to be conclusive proof that the mango tree was dying from the attacks of white ants pure and simple, and that the theory I had heard put forth in the name of Science by a Forest Officer was untenable. That theory appears to me to confuse two cases : (*i*) that in which white ants attack young trees a few feet high, eating out the heart of the tree, full of sap though it is, and doing their work of destruction unseen below the surface, and (*ii*) that in which white ants ascend the *outside* of a tree in search, presumably, of dead branches on top.
>
> The attacks of the first of the above kinds are not confined to young trees. I have found fields of *tur* in which a number of the plants have withered owing to the roots being eaten up by white ants, and in gram fields also I have had similar damage pointed out to me.
>
> If, then, it be considered as proved that white ants do considerable damage to horticulture by attacking the roots of living trees, the question of finding some preventative against their ravages becomes one of practical importance. I have made enquiries as to remedies against the attacks of termites, and found that the popular preventatives are numerous and not usually efficacious.

In noting the above, Dr. Watt, who has always held the scientific theory anent the method of their attacks, suggests the trial of the Gondal fluid recommended in his notable work on "Tea Pests and Blights." For the sake of those who do not possess a copy of this valuable work, we extract the following paragraphs dealing on the preparation of the point. "During a brief visit to the Native State of Gondal, the writer recently gave this subject (*i.e.*, the value of Al. dye *Morinda citrifolia,* in keeping off white ants) considerable attention. There seemed to be no doubt that His Highness the Takore Sahib, by his enlightened action in this matter, had effected a radical improvement. The trees throughout his State were all painted as described above (*i.e.*, to a height of 3 feet above the ground), and not a single tree could b e found that showed the mud encasements so characteristic of the presence of white ants. And very possibly, as a consequence of the care bestowed on these trees, they were healthy and vigorous, while those in neighbouring States were sickly and badly attacked with white ants. In consequence of these observations the writer asked for information as to the composition of the paint that had been used. He was informed that the red colour was merely to indicate that the trees had been painted, and that it was for the most part red ochre, but might be also made out of the refuse of the Al Dye works. The useful ingredients were said to be as follows :—

One part *dakamali* gum (the resin of *gardenia grunmifera* or *G. ludica* [Canarese Bikke, dikkemali kambi :—Ed., *P. O.*])

Two parts asafœtida or *hingra.*

Two parts bazaar aloes or *musubar.*

Two parts castor oil cake.

The *dakamali* gum, which is known all over India by that name, has a most offensive smell, resembling cat's urine. It has a marketable value in Mysore of Rs.3-12-0 per maund of 37½ lbs.

The ingredients are well pounded, mixed and kept in water for about a fortnight. When thoroughly united, and what may be called decomposed, into a thickened compound, water is added in order to bring it to the consistency of paint, and the colouring matter is then added.

The mixture is now ready for use, and, if thoroughly applied for about 2 feet, will check the attacks of white ants, and many other insect pests. Its effects will last for two years or more. The cost of the preparation comes to about 4 to 5 rupees per 100 trees.

The ingredients, which are readily procurable, are cheap and perfectly harmless. The effects of one painting are said to last for one or two years. Dr. Watt recommends that, in the case of tea, infested bushes should be thoroughly cleaned, to have the earth around them deeply hoed, even at the expense of cutting some of the roots, to have all ant nests removed when found, and to have the stems and branches, even some inches below ground, and for 2 feet above, thoroughly coated with the Gondal preventive paint.

The paint, by the way, is also very useful in painting pruned stumps or branches, both to preserve the surface from the effects of the weather, and to prevent boring insects attacking the wounded parts.

THE LADY-BIRDS AND COFFEE IN S. INDIA.

ADVERSE OPINION ON MR. NEWPORT'S MISSION.

THE following has been published by request in the Ceylon papers :—

THE Madras Government has communicated copies of correspondence received from the Secretary of State for India on the subject of the deputation of Mr. Newport to India for the purpose of obtaining lady-birds. The following is the correspondence referred to in the proceedings of the Madras Government:—

Read the following despatch from the Right Hon'ble the Secretary of State for India, Revenue, No. 4, dated 28th April, 1898:—I forward herewith a copy of a letter received from the Director of the Royal Gardens, Kew, and of its enclosure from Professor Blanford, offering some precautionary observations which may be useful on the subject of Mr. Newport's deputation to Australia for the purpose of obtaining a consignment of certain species of lady-birds. I am aware of the circumstances in which Mr. Newport was selected for this duty in the absence of a skilled entomologist.

Enclosures: Letter from the Director of the Royal Gardens, Kew, dated 17th March, 1898.

1. I have before me the proceedings of the Government of Madras, G.O., 351, 18th May, 1897, and G.O., 28, 17th January, 1898, of which I have received copies through the Secretary of State in Council.

2. It appears from these that coffee in the Madras Presidency is affected with scale bugs and other insects. To remedy this state of things it has been decided by the Madras Government to pay Rs.2,000, a moiety of the expenses of the delegation of Mr. Newport to Australia, to collect and carry to India a consignment of lady-birds.

3. The principle of dealing with scale bugs by introducing their appropriate enemy has been worked out by American entomologists and is undoubtedly sound. But as pointed out in the papers there are 1,700 known kinds of lady-birds and for the most part each of these will only feed on one kind of scale insect. The method therefore will obviously not work unless the appropriate enemy is set to work on its destined prey.

4. As it appeared to me doubtful if this point had been adequately considered by the Government of Madras, I obtained the opinion of Mr. W. F. H. Blanford, one of the Secretaries of the Entomological Society. This I enclose.

5. I may be permitted to observe that it appears to me improbable that any attempt to utilise these refined entomological expedients will lead to anything except waste of money, and perhaps as Mr. Blanford points out worse mischief unless carried out by a competent expert.

LETTER FROM MR. W. F. H. BLANFORD, TO THE DIRECTOR THE ROYAL GARDENS, KEW, DATED 15TH MARCH, 1898.

With respect to the support which the Government of Mad giving to the United Planters' Association of Southern Ind order to send Mr. Newport to Australia, for the collection of birds, it is clear that the Government and the planters are re on the success of the Hawaiian and American experiments i same direction.

I have looked up as much information as I can find of wha been done in this direction, and it appears that certain Austr lady-birds (of the genera Chilocorus, Orcus and Cryptolæmus) been found to attack and feed on species of Lecanium Insect IV., 164-165.

Although the official papers are silent on the point, it may ferred that the destructive coffee-scale of Southern India is *Leca viride* first described by Mr. Green from Ceylon. It is ther quite within the bounds of possibility that Mr. Newport may pr a return for the Rs.5,000 by bringing back lady-birds that will be useful in India.

At the same time, though not necessarily foredoomed to failur experiment is being carried out on quite unscientific lines.

No study appears to have been made of the Indian parasit Lecanium viride. Whatever the native home of this scale may is presumably not Australian, as was Icerya purchasi; ther plenty of Indian lady-birds, which perhaps already accomplis the destruction that imported kinds could do.

The success of the "Vedalia experiment" has given rise to a of delusion that one must, inevitably turn to Australia for coccid agous insects; and it is worth pointing out that *Icerya ageyptia* Dougl, which has been introduced into India, was found in 18 be attacked in the compound of the Indian Museum, Calcutta, b indigenous species of *Vedalia V. funida roseipennis*. In this the introduction of the Australian *V. cardinalis* would have utterly unnecessary.

In considering the chance of success of such experiments, well not to lose sight of considerations thus expressed by Rile a paper which lays down authoritatively the principles of such ec mic methods (Insect Life, 130, *et seq.*) There is very little to be h from the miscellaneous introduction of predaceous or para insects for the suppression of a phytophage which they do suppress in their native home or in the country from which they brought. All other things being equal, we should expect the spe beneficial in Australia to be less so when brought to this cou (America), a deduction which brings out still more clearly the ex tional nature of the case of *Vedalia* and *Icerya*.

Whatever good result the present experiment may have depend on Mr. Newport's capacity for carrying it out, and as Planters' Association has vainly asked for the services of a ski entomologist, he must be presumed not to be one.

To study and collect suitable predaceous species from among various Australian Coccimellidæ appear to me to be no easy even for an expert, and to be probably beyond the powers of a entomologist.

The selection of the species is only an initial difficulty; poss injurious forms must be eliminated, a point on which Mr. Koe who introduced *Icerya* into America, was specially cautioned. examples collected must be brought back alive, and sufficient in tigations of their life history, &c., made to enable this to be d Moreover they must be fed during the voyage on Australian sc insects, unless Mr. Newport exports with him a supply of shi infested with *Læcanium viride* on which to test and subseque to rear the lady-birds. In either case there is a risk that unski management might introduce an Australian scale to India, or *versâ*, which would be a most lamentable outcome of an ill-conside experiment.

Order thereon, Misc. No. 2294, dated 26th May, 1898.

Copies of the correspondence received with the Right Hon'ble Secretary of State's despatch read above will be communicate the United Planters' Association of Southern India.

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THE WORK OF LADY-BIRDS.

Report of Prof. Albert Koebele, Entomologist of the Hawaiian Government.

Honolulu, *December* 31, 1897.

Jas. A. King, Esq., Minister of Interior. Sir,—I have the honor to submit herewith my report for the two years ending December 31, 1897.

As you are well aware my first and chief work had to be directed against the numerous scale insects at the time infesting and destroying many of the valuable fruit, ornamental and shade trees. Up to the present time, some sixty species of these have been found on the islands, and some of them would have made it utterly impossible to raise the citrus and coffee trees successfully! in fact, most of the shrubs and trees at the time were so infested by the then recently introduced and most pernicious coccids ever met with, Dactylopius vastator, Mask, that their destruction in the near future seemed imminent had not relief been brought. Without doubt their destructive work would have spread over all the islands, notwithstanding the most diligent prevention on your part. The scale had not been met with as yet in any of the other islands, and at present wherever it may appear, its enemies are awaiting it, the chief of which no doubt is the Australian Lady-bird, Cryptolæmus montrouzieri. Mulsant. The coccid is a native of China where it had been met with in the neighbourhood of Hong Kong.

Another numerous scale, and one that had longer been introduced than the previous species, Dactylopiusceriferus, Newstead, had always been seen covering the leguminous trees often to such an extent that many of them lost their entire leaves and in some instances even were destroyed entirely by the quantities of mealy bugs present. This species also is kept in check by the Cryptolæmus beetles, which increase to such an extent in the early summer that millions of their larvæ can frequently be seen crawling around where the coccids abound. Often this very beneficial insect, for it is always in larval state where they do the most execution, are taken for so-called blights and are in consequence destroyed. It should always be borne in mind that the scale insects or blight are generally stationary, *i.e.*, fixed to the branches and twigs of plants, very rarely move about, and then only very slow; the Cryptolæmus larvæ on the contrary is quite active, and when full grown is about a quarter of an inch in length, covered above with six rows of contiguous elongated white mealy secreted appendages. It is then that they can be seen in such numbers that often the fences and walls are covered, the trunks and limbs of trees bear patches of the pupæ, often several feet in length. The insect was met with in tropical Australia, New Caledonia, Fiji, Ceylon and Southern China, and will apparently live out of doors in the tropics only.

Another Dactylopius has occasioned great inconvenience in the cane fields, known as D. chalceolariæ, Maskell. Here also the Cryptolæmus beetle appeared, and waged war upon the same with the consequence that at the present time the pest has also practically disappeared. This scale was met with in Fiji and tropical Australia.

Dactylopius adonidum, Linnæus, has ben present upon most all plants. It is this scale that has marred the coffee industry in the islands ever since the attempt was made to grow the tree over fifty years since, by its large numbers sitting around and sucking out the sap of the young berries, producing a premature colouring and dropping of the same. It likewise lives upon the roots of coffee and many other trees and plants in the tropics all over the world, whilst in colder countries it is found upon greenhouse plants chiefly. The injury to the various vegetation formerly caused by the foregoing and many other species of Dactyloplius present on the islands is now practically done away with, we have sufficient enemies present for them for all time to come.

Pulvinaria psidii, Maskell, another introduction from the Orient, had spread considerably over the islands, and caused some anxiety, especially in the coffee districts. I myself must confess that nowhere have I ever seen a landscape so completely blackened by the fungoid growth, caused by the honey exudation of the Pulvinaria scale in which this grows, as that of North Kona on my visit in February, 1894. On my recent trip to the same place, all this had changed, and the district, to me, had the appearance of another country, all owing to the presence of the Cryptolæmus beetle that devours the eggs of the scale. Since then various other species of lady-birds were sent there, and still more will be sent all of such that will prey both upon the eggs and mature insects.

The rose apple, Eugenia malaccensis, was still found covered by the black fungus. Here another tropical scale, Lecanium acuminatum, Signoret, is present in large numbers upon which the Cryptolæmus beetle will not feed, yet many other lady-birds have been sent that will feed on this and all species of Lecanium. The above scales have so far been the most numerous and destructive, yet other forms as well have been on the increase and I can give a short account of some of them only, as many of the species are not yet worked up.

Aspidiotus aurantii, Maskell, is injurious to citrus trees chiefly in temperate zones and may have come upon those trees from any port in California, Australia, China, or Japan. It was found upon recently introduced Potocarpus plants from Japan. The climate of Honolulu appears not to be suitable for the same as it was not met with in the tropics as injurious to citrus plants. At Sydney it was found upon Perea carolinensis, Laurus nobilis; Brisbane, numerous upon Jasminum; at Rockhamsden on wild fig tree; Cairns, cultivated figs and Morus sp. In Ceylon on Agave (Green); Hong Kong on Paliurus ramosissimus; Litsea sebifera, Hedyotis acutangulus (very numerous), Stillingia sebifera; on Melia azedarach at Amoy, Swatow, Hong Kong, Formosa and Honolulu; Japan on Potocarpus and Damara like trees, also many other plants. One Chalcid parasite Aspidiaphagus citrinus, Craw, is preying on the same in China, Japan and California.

Aspidotus cydoniæ, Comstock, was found on a garden plant at Paia Maui, and upon Ake at Honolulu.

Aspidiotus longsipinia, Morgan, infests trunks and branches of Orange, Lemon, Mango, Kukui tree, Figs, Pride of India, etc., on all the islands and even a common weed at Lihue, Kauai. The scale was found at Tamsui, Formosa, on Orange and upon Fig trees at Hong Kong. A large number of the scales are punctured with holes from where a minute Chalcid parasite has issued that keeps the scales in the islands in check.

Aspidiotus duplex has been repeatedly introduced on Camellia from Japan where it also is found upon the tea and other plants it has yet not become injurious on the islands.

At Makaweli, Kauai, Aspidiotus camelliæ and A. nerii were found upon imported American apple, pear and peach trees in such numbers that some of the trees had died. A number of other species of Aspidiotus were met with in the island, all of them introduced.

Of Parlatoria, P. zizyphi is the most numerous upon citrus and other trees in Honolulu. P. pergandei is as yet not so numerous. The first was found at Hong Kong and Canton infesting citrus trees, and the second upon Enonymus at Yokohama and on Camellia at Macao. Mytilaspis citricola, Packard, is the scale at present found so numerous upon citrus trees at Honolulu, where it had spread within two years. A number of introduced lady-birds are preying on the same, and as far as my observations go, I believe that in time they will effectually keep the same in check. The scale also infests Groton and other plants. It is common most everywhere in the world. It is found in the Kona (Hawaii) district, but not numerous. Mytilaspis gloverii, Packard, has at present only been met with in a citrus tree in Mr. Jordan's yard. The tree had been imported from Japan or China where the coccid is numerous, and with the foregoing one are most destructive to citrus plants.

Mytilaspis pallida, Green, has been found upon imported Japanese Potocarpus plants. Mytilaspis flava, Targioni tozzetti, was met with upon bark of various shade trees at Makaweli, Kauai, and in China upon Pyrus sinensis (Hong Kong). Mytilaspis pomorum, Bouche, the apple bark louse, was also found on imported American plants at Makaweli, Kauai. Diaspis rosæ, Sandberg, is the common rose scale and is found all over the world. Diaspis boisduvalii, Signoret, has been found on imported orchids.

Chionaspis biclavis, Comstock, is found over all the islands on bark of various trees and always badly parasitical. It is not serious in consequence. It may have come from any of the South Sea Islands or Asia. Chionaspis eugeniæ, Maskell, is a widely distributed species, it occurs in Australia, Ceylon, China, and Japan and lives upon very many plants. The scale has been doing well with Mr. Jordan, upon imported Japanese Magnolia and Eugenia.

Chionaspis prunicola, Maskell, Diaspis patelliformis, Sasaki, Diaspis amygdali, Tryon, has been found upon imported Japanese plum trees that had died from the effects of the scale which appears to be very injurious in some temperate zones. It is still present upon a Japanese pear tree on same place at Honolulu. In Ceylon

it was found on bark of Aleurites triloba, at Hong Kong, on Rhus sp. Amoy, on peach, on the same tree at Formosa and unknown wild shrub, in Japan always on Pyrus, Prunus and Morus, on Juglans, Elæagnus, Ribes rubrum, Salix, Sterculia plantanifolia, Fraxinus, Orixa japonica and many other trees and shrubs. While I anticipate no serious trouble from this coccid in the islands, yet it should not be allowed to get a foothold, and should be stamped out in the beginning.

Fiorinia camelliæ, Comstock, was first noticed upon imported Japanese Potocarpus. It is found most anywhere and has been met with in Australia on many plants, in Ceylon on Mistletoe, on Oleander at Amoy, in Formosa on Psidium and Juniper, Japan on Potocarpus macrophylla, Sciadopytis verticillata, Camellia, Enonymus, etc.; on Alligator pears, palms, Camellia, etc., on Honolulu. Aspidiophagus citrinus, Craw, is preying upon the same.

Ceroplastes rubens, Maskell, was found but sparingly in the beginning of 1894, yet at the present it may be seen anywhere and upon most any tree in Honolulu, although numerous, it is not very injurious compared to other scales. The insect no doubt was introduced with plants from China as it is quite common around Hong Kong and there lives chiefly upon the various pine trees. In Ceylon it was found upon Jambosa vulgaris. Two species of Chalcid parasites live upon the same in Honolulu, viz., Tomocera Californica, How, and Coccophagus sp. A third species that is preying upon Ceroplastes floridensis, Comstock, in Japan, has been introduced in some eighty specimens of both sexes.

Both Ceroplastes ceriferus, Anderson, and C. floridensis have, at innumerable times, been brought in on plants from Japan and China, yet none of these appear to be established.

Lecanium acuminatum, Signoret, is present on many plants in the islands, yet chiefly upon limes and lemon. It is always badly parasiteized in Honolulu by two species of Chalcid flies.

Lecanium filicum, Boiduval; L. Hemisphæricum, Targioni, Tozzetti; Lecanium coffea, Nietner, is found upon very many cultivated and wild plants throughout the islands, and is preyed upon by internal parasites; it is found common all over the world, chiefly so in the tropics.

(*To be Continued.*)

FAIRLY WELL ISN'T WELL ENOUGH.

Let us say that your wages are twenty shillings a week. You have worked hard, done your best, and feel that you have earned your money. Very good. Now imagine that when Saturday night comes your employer hems and haws, and wants to put you off with fifteen. I'll be bound you would think yourself hardly treated. What are the great strikes in this country commonly about? Why, in some fashion they are about wages or hours; it comes to the same thing. Be it understood that the writer uses this fact as an illustration of another fact—that is all. What is that other fact? We will work it out of the following personal statement.

"Nearly all my life," says Mrs. Sarah Dalby, "I have been subject to attacks of biliousness, accompanied with sickness, but got on fairly well up to the early part of 1882. At this time I began to feel heavy, dull, and tired, with an all-gone, sinking sensation. My skin was sallow, and the whites of my eyes of a yellow tinge."

As everybody knows, or ought to know, the colouring matter was bile. The liver being torpid, and, therefore, failing to remove the bile from the blood, it entered the skin; and showed itself on the surface. But the discolouration isn't the worst mischief done by the vagabond bile, containing many poisonous waste elements; it disorders the whole system and sets up troublesome and dangerous symptoms, some of which the lady names.

"I had a bad taste in the mouth," she goes on to say; "and, in the morning particularly, was often very sick, retching so violently that I dreaded to see the dawn of day.

"My appetite was poor, and after eating I had pain at my chest and side. Frequently I couldn't bring myself to touch food at all; my stomach seemed to rebel at the very thought of it."

[This was bad, but the stomach was right, nevertheless. More food would have made more pain, more indigested matter to ferment and turn sour, more of a load for the sleepy liver, more poison for the nerves, kidneys, and skin. And yet, *without the food*, how was she to live? It was like being ground between the upper and t nether millstones.]

"After this," runs the letter, "I had great pain and fluttering the heart. Sometimes I would have fits of dizziness and go into a faint, which left me quite prostrated. Then my ner became so upset and excitable that I got no proper sleep at nig and on account of loss of strength I was obliged to lie in bed all d for days together. I went to one doctor after another, and attend at Bartholomew's and the University Hospitals, but was none t better for it all.

"In September, 1883, my husband read in *Reynolds' Newspa* about Mother Seigel's Curative Syrup, and got me a bottle of After taking it for three days I felt relieved. Encouraged a cheered by this I kept on taking the Syrup, and in a short time the pain and distress abated, and I was well—better than I h ever been. That is ten years ago, and since then I have never ai anything. With sincere thanks, I am, yours truly (Signed) M Sarah Dalby, 93, Tottenham Road, Kingsland, London, N., Janua 2nd, 1894."

Now run your eye back to the first sentence of Mrs. Dalb letter, and you will come upon these words, "*I got on fairly we* &c. *This* is the sad thought. Her life has always been at a d count; she has always got less than her due; she lost part of h health—wages. Do you take my meaning? Of course. Whatev may be our differences of opinion as to the rights of capital and t value of labour, it is certain that every human being is entitled perfect health—without reduction, without drawback. All t more, as nobody else loses what one person thus gains. No, no. the contrary, a perfectly healthy person is a benefit and a blessi to all who are brought into relations with him.

But do all have such health? God help us, no; very, very fe Why not? Ah, the answer is too big; I can't give it to-day. the vast crowd who only get on "fairly well" I tender my sympath and advise a trial of the remedy mentioned by Mrs. Dalby.

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MARKET REPORT.

COFFEE.

Messrs. R. J. Rouse & Co's Weekly Coffee Report (June 17, 1898) says:—

The market at Public sale has again been easier as the demand proved quite insufficient for the enormous supplies which still continue, and prices generally show a further reduction on the week.

About 2,800 bags East India were offered, consisting chiefly of small lots of undesirable qualities, which met a slow demand at fully 2/- decline whilst a large proportion was bought in.

The large quantities of Central American catalogued met little competition and sellers had to accept a further fall of 2/- to 3/- for what was sold; one or two fine colory parcels however realised very full values.

Futures have also been easier and business very slow; quotations at the close being 6d. to 9d. lower since our last.

Messrs. Wm. Jas. and Hy. Thompson's Report of the Colonial Markets for the Week ending June 16th, 1898, says:—Bank rate 3%. Bombay Exchange closes at 1s. $3\frac{1}{16}$d. Brazil Exchange $7\frac{2}{32}$d. Rupee paper $3\frac{1}{2}$% $62\frac{1}{2}$. Silver $27\frac{7}{8}$d. per oz.

The heavy quantities catalogued since our last Report have only partly been disposed of at easier prices, most kinds being difficult of sale at an irregular decline of 1s to 2s per cwt., and in some cases more. Should importers continue to press the Coffee forward, values will no doubt go down, the Trade at the moment having bought freely during the past few months, and being well supplied. Fine qualities which are scarce continue to be well competed for, but all other kinds are difficult of sale.

The Dutch sale of 20,494 bags and 28 cases held yesterday in Rotterdam went off at an irregular advance of 1 to $2\frac{1}{2}$ cents, good ordinary Java selling at 35 cents, against $33\frac{1}{4}$ cents last month.

Brazil markets are dull.

Daily receipts averaged 6,500 bags in Rio and 4,300 bags in Santos.

Futures have ruled quiet and lower, closing at 9d to 1s per cwt. decline, viz.:—Good average Santos in Havre, September delivery, fcs. 36.50, in Hamburg pf. $30\frac{1}{4}$, and No. 7 low ordinary Rio in New York $5.75.

To-day's London official quotations are:—

	June	July	Sept.	Dec., '98.	Mar.	May, '99.
Santos ...	29/3	29/6	30/-	30/6	31/-	31/-

We quote:—

Ceylon, mid. to good mid.	96/@107/	Costa Rica, mid. to fine...	72/@107/
Do. small to low mid.	80/ „ 93/	Do. ord. to low middling.	46/ „ 70/
East India, mid. to good mid...	77/ „ 92/	Jamaica, good to fine ord.	33/ „ 51/
Do. small to low mid.	60/ „ 75/	Do. greenish to fine colory...	70/ „ 125/
Guatemala, mid. to fine...	70/ „ 100/	African ...	26/ „ 29/
Do. good ord. to low mid...	54/ „ 68/	Columbian, ordinary ...	35/ „ 43/
Salvador, good ord. foxy greenish...	41/ „ 43/	Do. good ord. to low mid...	44/ „ 64/
		Do. mid. to fine...	65/ „ 93/

Receipts in Brazil to 15th June compare as follows with previous years:—

	1897-98. Bags.	1896-97. Bags.	1895-96. Bags.
Rio	4,216,000	3,434,000	2,298,000
Santos	6,063,000	4,985,000	2,976,000
	10,279,000	8,420,000	5,274,000

In Sale—

3 casks 2 barrels Plantation Ceylon	...	...	56/ @ 112/
2,822 bags East India.	232 bags Mysore, chiefly sold	...	52/ „ 111/6
	56 bags Coorg ...	...	52/6 „ 86/
	1,760 bags Neilgherry, partly sold	...	46/ „ 97/6
	160 bags Wynaad „	...	51/6 „ —
	614 bags Shevaroy „	...	49/6 „ 91/
9,774 bags Costa Rica,	part London cleaned, chiefly sold	...	34/ „ 103/
3,960 bags Guatemala	„ „ good part sold	...	32/ „ 81/
3,158 bags Salvador	„ „ „	...	41/ „ 72/
2,060 bags Nicaragua,	„ „ chiefly sold	...	38/ „ 110/6
187 bags Mexican	„ „ bought in		
273 bags Venezuelan	„ „ „		
2,969 bags Columbian	„ „ chiefly sold	...	39/6 „ 90/
290 bags Guayaquil	... ...	...	42/6 @43/
123 bags Porto Rico,	small part sold ...	...	37/6 „ —
940 bags Vera Paz,	part London cleaned, partly sold	...	46/6 „ 97/
17 bags Montserrat,	London cleaned, part sold	...	25/ „ —
4 bags Dominica bought in.			
9 bags South Sea Islands	... ...	...	32/ „ —
190 packages Mocha bought in.			
642 brls. 201 bags Jamaica,	part London cleaned, good part sold	...	36/6 „ 60/6
199 bags Ceylon Liberian	small part sold ...	...	25/ „ —

On quay terms:—

100 bags washed Santos bought in.

Landed last week ...1,715 *tons. Deliveries* ... 983 *tons. Stock*...18,253 *tons.*
Do. last year ... 454 „ „ ... 718 „ „ ...14,059 „

TEA.

Messrs. Gow, Wilson and Stanton's Indian, Ceylon, and Java Tea Report, dated June 17th, 1898, says:—

QUANTITY BROUGHT TO AUCTION IN LONDON FROM 1st June to Date.

	Indian.	Ceylon.	Java.
1898-1899...	20,395 packages.	56,436 packages.	1,912 packages.
1897-1898...	20,366 „	73,204 „	2,958 „

9,895 *pkgs.* Indian
34,561 „ Ceylon
——— „ Java
} Total 44,456 packages were offered in public auction this week.

Duty payments for the complete season show only a very slight expansion in the Home Consumption of Tea. Re-export of Indian and Ceylon Tea made some progress during the season.

Quantity of tea (in lbs.) on which duty was paid at all Bonded Warehouses in the Kingdom from 1st June to 31st May.

	1897-8.	pctgs.	1896-7.	pctgs.	1895-6.	pctgs.	1894-5.	pctgs.
Indian	...127,575,718	54	123,735,159	54	121,099,847	54	113,443,076	53
Ceylon	... 86,874,299	57	83,532,450	36	75,922,038	34	71,550,480	33
China	... 15,706,917	7	19,515,806	8	21,788,914	10	25,493,436	12
Other Countries	4,710,543	2	4,423,735	2	4,290,446	2	4,640,667	2
Total lbs.	...234,867,477		231,207,150		223,101,245		215,127,659	

Indian and Ceylon Tea (in lbs.) exported from Great Britain from 1st June to 31st May.

	1897-98.	1896-97.	1895-96.	1894-95.
Indian ...	5,957,075	5,245,489	3,835.856	3,735,035
Ceylon ...	10,753,733	9,428,653	7,558.234	5,829,507

Indian. Amongst the small quantity brought forward, 1,509 packages of New Season's Tea were included; these sold with spirit at satisfactory prices, the following being some of the averages obtained:—"Budla Beta," $1/3\frac{3}{4}$; "Eastern Assam C Balijan," $1/0\frac{1}{2}$; "Assam Fron. C Hilika," $11\frac{1}{2}$d.

For Old Season's Tea, bidding was also good and prices showed a slight improvement here and there, although no material change has taken place in quotations. The official wire gives exports to U. K. for first half of June as lbs. 3,750.000 against lbs. 3.115.000 last year, and from 1st April to 15th June, lbs. 6,457,000 against lbs. 6,294,000 for same period last year.

Week's avg. of New Season's Tea sold on Garden Account, 1898, 3,341 pkgs., av. 7·38d. 1897, 4,377 pkgs., av. 8¼d.

	1898. Pkgs.	1898. Price.	1897. Pkgs.	1897. Price.	1st June to date 1898. Pkgs.	1st June to date 1898. Price.	1st June to date 1897. Pkgs.	1st June to date 1897. Price.
Assam ...	909	9·30	1,286	9	1,127	9·69	1,486	9·07
Cachar & Sylhet ...	—	—	199	6½	—	—	248	6·40
Chittagong ...	—	—	—	—	—	—	—	—
Chota Nagpore ...	—	—	—	—	—	—	—	—
Darjeeling ...	295	8·51	1,011	10	550	9·40	1,011	10
Dooars ...	188	8·25	371	8½	188	8·25	371	8·50
Kangra, &c. ...	100	7	—	—	100	7	—	—
Neilgherry ...	100	7·61	73	6¼	100	7·61	73	6·25
Terai ...	—	—	106	8¾	—	—	106	8·75
Travancore ...	1,712	6·28	1,331	6¼	3,189	6·25	1,331	6·25

Total sold on Garden Account 1st June to date 1898, 5,291 pkgs., av. 7·34d. 1897, 4,678 pkgs., av. 8·25d.

		1898.	1897.	1896.	1895.
Dust.	(Fair ordinary, dark liquor) ...	3½d	3½d	4½d	4½d
Fannings.	(Red to brown, strong rough liquor) ...	3¾d	4d	5d	5d
Broken Tea.	(Brownish to blackish, strong liquor) ...	6d	6½d	7¼d	7d
Pek. Soug.	(Blackish greyish, useful liquor).	6½d	6¾d	8d	8d

		1898.	1897.	1896.	1895.
PEKOE.	(Greyish to blackish, some tip, useful liquor) ...	7¼d	8½d	9d	8¾d
PEK. SOUG.	(Blackish greyish, inferior liquor).	5¼d	5d	5¾d	6¼d
PEKOE.	(Blackish greyish, some tip, inferior liquor) ...	5½d	6d	6¾d	7d

Ceylon. Although the sale was comparatively heavy the market was animated, the chief demand running on good liquoring Teas over 10d. and the lower grades of whole leaf Teas. For these, competition was keen and dearer prices were occasionally obtainable. For medium grades, especially Pekoes, the market was weaker. Owing to the fire at Hays Wharf several invoices were withdrawn. Private telegraphic advice gives the quantity exported to U. K. for first half of month as lbs. 4,500,000 against lbs. 55,20,000 same time last year. Avg. price 7·58d. agst. 7½d. same week 1897.

Ceylon Tea sold on Garden Account 1st Jan. to date 1898, 517,5 pkgs., av. 7·64d. 1897, 505,717 pkgs., av. 7·79d.

		1898.	1897.	1896.	18
PEKOE SOUG.	(Ordinary leaf; fair liquor) ...	6d	6d	6¼d	6
PEKOE.	(Ordinary leaf; little twist; fair liquor) ...	6¾d	7d	6¾d	
PEKOE SOUG.	(Rather bold leaf; indifferent liquor) ...	5d	5d	5d	
PEKOE.	(Somewhat bold leaf; indifferent liquor) ...	5½d	5½d	5¾d	6

Javas. No sales were held during the week, but 1,441 packages catalogued for the 28th. inst.

Bank Rate 3 per cent. Exchange on London three months sight Calcutta 1/4 3/32. Colombo 1/4 3/32.

PUBLIC SALE OF SOUTH INDIAN TEA.

(AVERAGE FOR ALL INDIA 7·28*d.*) *May 20th.*

GARDEN.	Total.	Average.	Broken Org. Pek. or Flowery Pekoe.		Pekoe and Unassorted.		Broken Pekoe.		Pekoe Souchong.		Broken and Souchong.		Fannings, Dus and Various.	
	Quantity	Price.	Quantity	Price.	Quantity	Price.	Quantity	Price.	Quantity	Price.	Quantity	Price.	Quantity	Price
Travancore ...	**144 p**	**5·94**												
Chulika ...	54 p	5¼	...	...	9	5½	34½2	5¾	7	5	...	...	4	2¾
Isfield T. Co. ...	90	6¼	...	...	34	6	28	7	28	5½	...	...	...	...
South Wynaad ...														
Richmond ...	16	6	3	8½	3	6½	...	...	10	5	...	...	...	...

(AVERAGE FOR ALL INDIA 7·56*d.*) *June 10th.*

Travancore ...	**1477 p**	**6·30**												
Arnakal ...	32 p	7	4	7½	12 p	6¼7½	10	8¼	1	5½	...	...	5½c	4½
Atchencoil ...	53	5¾	...	...	21	5½	12	7	20	5	...	...	...	...
„ ...	58	6	...	...	29	5¾	13	7½	16	5½	...	...	...	...
Balamore ...	120½c	5½	...	...	84½c	5 5¼	32½c	6	...	...	4½c	4½	...	...
Carady Goody ...	42	6½	23	6¼	...	...	19	6¾	...	...	...	...	...	...
Corrimony ...	85½c	6¼	...	...	69½c	5¾6¼	13½c	8¼	...	...	1½c	4½	2½c	3
Elderslie ...	120	5¼	...	...	60	5¼5½	25	6	30	4¾	...	...	5	2½4
Fairfield ...	151 p	6	30½c	6½	39	6	36	6½	31	5½	8	5¼	7	3
Glenmary ...	184 p	7½	115	7½8½	30	6¼	...	...	...	...	...	...	39 p	4 7
Glenmore ...	80½c	6¼	...	...	72½c	6	8½c	7¼	...	...	...	...	...	...
Seafield ...	118½c	6¼	...	...	84½c	5½6	32½c	7½	...	...	1½c	4½	1½c	2½
Travancr Est B A...	247	7	...	...	72	6¼6½	91	7⅝8	22	6	9	5½	53	7 7¼
„ „ Pamb...	182	5¾	30	†6¼	29	5½	88	5¾†6¼	35	5¼	...	...	...	...
W ...	5½c	6	...	...	5½c	6	...	...	...	...	...	...	...	...

(AVERAGE FOR ALL INDIA.) *June 17th.*

Neilgherry ...	**100 p**	**7·61**												
Kodanaad ...	53 p	9¾	...	...	25	9¼	28½c	10½	...	...	...	...	...	...
Warwick ...	47 p	5¼	...	...	47 p	†5 5½	...	...	...	...	...	...	...	...
Travancore ...	**1712 p**	**6·28**												
B A ...	42 p	5	...	...	17	5	...	...	...	...	25 p	4¾5¼	...	...
Braemore ...	114 p	6	...	...	35	6	60½c	6¾	...	....	7	5¼	12½c	3½5¼
Cheroot Mallay ...	58½c	5½	...	...	56½c	5½	...	...	...	...	2½c	5¼	...	...
Goatfell ...	117	5¼	...	...	48	†5¼	44	5¾†5¾	25	4¾	...	...	...	...
Invercauld ...	49 p	5¾	...	...	26	5½	16	6¼	5	5	...	...	2½c	3
Isfield T Co Isfield.	21	3	...	...	...	...	...	...	...	...	...	...	21	2¼†3
Kanan Dev Hil C A.	100½c	6½	...	...	30½c	6¼	40½c	7¼	30½c	6	...	...	...	...
Kinmylies ...	54½c	6	12½c	6½	42½c	5¾	...	...	...	...	...	...	...	...
Mahendragherry ...	90½c	6	15½c	7¼	65½c	6	...	...	6½c	4¾	4½c	4⅓	...	...
ME ..	21	5	...	...	6	5¼	...	...	...	...	15	4¾	...	...
Merchiston ...	78 p	5½	40½c	6	27	5½	...	...	7	5¼	...	...	4½c	3
P ...	40 p	5	...	...	26	5	...	...	...	...	14	4¼	...	...
Peushurst ...	177 p	6¾	73 p	7½9¼	44	6	24	7	23	5¼	6	5¼	7	4
Poonmudi ...	136 p	6	...	...	70	6	32	6¾	18	6	...	...	16½c	3 5
Sth Indian T C K K.	94	7½	62	7½8½	18	6½	...	...	...	...	...	...	14	7
STT Co Venture ...	101 p	6	29	7	57	6	...	...	...	...	...	...	15½c	3¾
Stagbrook ...	189	6¾	81	7¼7½	62	6½	...	...	26	5½	...	...	20	6
Travancr Est B A...	109	7¾	...	...	51	7	45	8½	5	6	...	...	8	7¾
Vembenard ...	122	6¾	...	...	18	6	89	7	9	5¾	...	...	6	4¼

Teas marked thus † are New Seasons.

PLANTING OPINION.

A WEEKLY JOURNAL

WRITTEN BY PLANTERS FOR PLANTERS.

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ADVERTISEMENTS.—From the 1st October, 1897, the charge for line advertisements will be: 4 as. per line for the first, 3 as. for the second, and 2 as. for the third and succeeding insertions. Five-line advertisements from Subscribers will be inserted for three issues for one rupee; non-Subscribers will be charged two rupees.

DOMESTIC OCCURRENCE.—The fee for inserting a domestic occurrence will be *One Rupee* for each insertion, payable in advance.

N.B.—Remittances should be sent to the Manager, "Planting Opinion," 11/12, Second Line Beach, Madras.

IMPORTANT NOTICE.

The Business Offices of this paper having now been removed to Madras, all remittances should be made payable to the Manager of *Planting Opinion*, 11 and 12, Second Line Beach, Madras, who will also attend to all advertisements, &c.

Letters to the Editor should be addressed to Coonoor, as usual.

SEASON REPORTS.

TO OUR SEASON REPORTERS.

Please post your next reports to reach Madras on Friday, the 22nd July, 1898.

Season Reports should be sent to the Printers, Messrs. Addison & Co., direct, and not to *Planting Opinion* Office.

Coorg.

Pollibetta, 13*th July.*—*Weather.*—The monsoon has dried up entirely now. Since Sunday we have had hardly any rain to measure. Work on paddy fields is retarded. *Crops.*—This weather, no doubt, has been the salvation of the crop; but now even the crop wants rain. Supplies want it badly. The N.-E. rains cannot be depended on here. *Works.*—Nothing beyond weeding, supplying, handling and destroying borer. *Labour.*—Hardly any Canarese have begun to come in anywhere. *Health.*—Continues good.

Nellampatty (British).

13*th July.*—*Weather.*—Since my last report had been splendid for everything, save health, it would seem. Dull days with perhaps a glimpse of sunshine now and then, while every day at some hour a little rain has fallen, and to all appearances this sort of weather is to continue. Rain for fortnight 8·8 inches, to date 44·8. *Crops* are showing up a little more now that fields are being handled, and although blossom estimate won't be reached, still in most cases, I think a little over second estimate may be counted upon. *Plant-diseases.*—"Leaf" showing in patches on some places, on others not a sign of it, and coffee looking very well indeed. *General Health.*—Very bad. Coolies are suffering from colds and fever very much, and some Europeans are also down. *Labour.*—Plentiful on some places, short on others. Coolies seem to be very independent this year and much more troublesome than usual. Would your other correspondents say if this is found in their districts?

PLANTERS AND EXCHANGE.

II. SOME POINTS FOR LOW EXCHANGE.

WE can readily imagine some readers exclaiming, after perusal of "Some Points for High Exchange," "Skittles!" Precisely. The skittles were set up for the simple purpose of being knocked down again. That is one of the main reasons, not only why skittles usually are set up, but also why many arguments are set up. They have to be marshalled in line. Then comes the adversary, and down the whole series go like a set of ninepins at the touch of a cleverly pitched ball. And so it is in the present instance. To advance the cause of low exchange, we must upset that of high exchange. We cannot directly meet the argument about Home Charges. There can, unfortunately, be no question that a low exchange must cause an enhancement of these for many years to come. But *indirectly* even this difficulty can be met. A country that is prosperous can face smilingly debts that would confound a unprosperous country. If, therefore, it be shown that low exchange means to India prosperity and wealth, then something will have been effected towards showing that India prosperous can meet enhanced Home Charges with less difficulty than India unprosperous has with respect to Home Charges on a lower scale. It would, however, be impossible for us to establish in the brief space at our disposal such an important issue as this. We must appeal to the experience of our readers. Have they found a high or a low exchange more favorable to their prosperity? If the latter, then we may fairly assume that the Indian cultivator has had similar experience, and no one can deny that it is the Indian cultivator who chiefly contributes towards the building up of India's *export* trade, and that this has long bulked larger than the *import* trade of the country. True, the cultivator must be called upon to pay increased wages. It is because in so many instances Government has no power to levy this extra taxation, that an unfair burden falls upon others. The Permanent Settlement has much to answer for, and its influence on the Currency Question is by no means unimportant.

Now, as to Sir JAMES MACKAY'S argument about prices. Let it be admitted that the fall in prices in London is due partly to increased competition, and we may assume that—in respect of tea, at any rate—it is partly due to the fall in exchange also. What then? Sir James asked if men could say that low exchange had done anything to keep up prices? Certainly, it has, *in India*. It has not kept up sterling prices, but it has unquestionably propped up the rupee values of tea, and it is the rupee values that regulate the returns to the pockets of planters. Note what the Ceylon Silver Currency Commission reported in 1894: "At the present moment it may be calculated that tea has become, since 1888, worth to the producer almost as much as coffee used to be worth in the days of its greatest prosperity, while the value of other commodities exported has more than doubled." Again, "we are of opinion that the low price of silver has stimulated the production of many commodities, and that the increased production so caused has naturally tended to lower prices, but on the question of a direct connection between the price of silver and that of other commodities our views are identical with those expressed by Lord Herschell's Committee." These were that having regard to the phenomena presented in the case of Indian products not greatly open to competition, and to the necessary effect c competition in the case of those which are within the sphe of its influence, it seemed far from clear that the fall in th gold price of Indian products would have been materiall less if the exchange had not fallen. And the Ceylon Com mission rightly said that the figures before them indicate generally a considerable degree of prosperity in all classe of producers for export. Although, therefore, the argu ment about the capital value of an estate is one that can b twisted in many ways, there is strong reason to believe tha Sir JAMES MACKAY expressed a perverted view of it in th remarks quoted in our last. It may be granted that at time when Exchange was to say, half masted, the capit value of many estates in India, worked out in sterling, wa below cost. But is this the case now? There may be badl managed or unfortunately-situated estates that would a ford a basis for the high-exchange advocate to work upo But, speaking generally, estates have prospered of late year and have at least recovered the full sterling value tha would have been put upon them if purchased when th rupee was at par. It is a fact that many men have not onl reaped a handsome income year after year, but that some c them have sold out at splendid prices, and even realisin at very low rates of exchange have made sure of a sterlin capital far above the amount originally invested.

Personalities in matters of this kind are not desirabl yet they are often very effective. If permission could b obtained to cite before the Currency Committee a few cas in point, these would go far towards establishing the trut of planters' assertions that an inflated rupee is a bugbear t them, and an unnaturally depressed rupee a help. At th same time, they could hardly hope to gain anything b asking for the latter. What they have to aim at is natural rupee, neither inflated nor deflated. They wan fair-play; and if artificial propping up of the rupee does no give them this, they must do their utmost to prevent it. a few instances could be put before the Committee of me who had realised during a period of low exchange and ha withdrawn a full sterling capital notwithstanding th exchange, something would have been done towards upse ting the plausible arguments of such men as Sir JAM MACKAY. What the planter must show is, that during perio of low exchange the planter has done better than durin periods of high exchange. That this has been the case f the most part can scarcely be denied.

A SALTPETRE REFINERY FOR PLANTERS.

WE publish to-day an interesting paper by a well-know planter of South India, headed "A Co-operative Saltpet Refinery." "Toda," for that is the name under which h conceals his identity, proposes a somewhat novel schem namely, that planters should themselves conbine to start refinery in a suitable locality, and supply themselves wit abundance of good and cheap nitrogenous and potass manure in the form of nitrate of potash, commonly know as saltpetre. The article was suggested by some remark of ours in last week's issue, advising the more general u of such an excellent and cheap fertilizer.

"Toda" proposes that some such suitable locality Coimbatore or Trichinopoly be chosen for the site of the e periment, and suggests that a few estates should subscri

the necessary funds. As "Toda" only estimates these at some Rs.1,250, there should not be much difficulty in raising the funds. There are, however, a few points which require to be cleared up, the elucidation of which would go far towards making the scheme a success, and an early one. Before actually starting the refinery, careful investigations should be carried out on the spot. The three main points that require to be settled with some approach to accuracy are, first, the cost of erecting the necessary "plant;" secondly, the cost of the manufactured article; thirdly and lastly, its manurial properties, as determined by chemical analysis. We have not the slightest desire to throw cold water on the scheme; on the contrary we are anxious to render it all the support we can. But it is a sensible proverb that says: "Make haste slowly." Saltpetre refineries, whether co-operative or not, are commercial ventures, and it would be the height of folly to rush an undertaking of the kind. From what "Toda" says, and from what we have ourselves gathered, the actual factory need not be anything very expensive or elaborate. The cost of production is a more important point, and cannot be settled except by careful enquiry on the spot. Lastly, chemical analysis must determine the real value of the manufactured article, samples could be easily procured from native refiners, and sent to Madras or elsewhere for examination. It is useless to quote English analyses, as the purity and value of the nitrate depend largely on the amount of care, and consequently cost, expended on the refining process. If the proposed refinery is to work on native lines, native-made samples must be obtained. "Toda" says he will willingly undertake the starting of the scheme in person, so long as his personal and travelling expenses connected therewith are defrayed.

These preliminary investigations could easily be carried out for, say a couple of hundred rupees at the most, and we trust this amount will be readily forthcoming. In connection therewith we shall be glad to forward to "Toda" any letters on the subject.

We may mention, by the way, that the prices quoted by us last week for "crude saltpetre" were taken from market price lists.

NOTES.

Rivals. Japan is pushing tea; the Transvaal is doing its best to foster the cultivation of coffee. All the more reason why Indian planters should push for *New Markets*. That is one of the chief points to be kept in view. The Newmarket Stakes should be popular, in fact, and we should be very glad if there were a favourite to be named. Who enters?

Mangosteen plantations. When we consider the great scarcity of this delicious fruit in South India, and the consequently exceptionally high prices it commands, it is not a little curious that so little attention has been paid to its cultivation and growth. Seed can be obtained just now in almost any quantity,—though by no means cheap, as the fruit is so expensive,—from the Curator of the Government Gardens, Ootacamund. In our next issue we hope to give a few interesting details on questions connected with its growth and cultivation. There is a lot of money in tropical fruits, much more so than planters have any conception of.

Coffee Stenophylla. The *Kew Bulletin* prints a letter from Hartoof, Trinidad, in which the merits of this species, a native of Sierra Leone, are pointed out. The berries are dark purple, not red, and the flavour of the prepared seed is excellent; steps have been taken to introduce it into other West Indian islands. The experiments carried out thus far in Bangalore, Burliars and Coonoor certainly do not point to the advisability of extending the trials with this variety in South India. A feeble, many-stemmed growth of a foot or two at most has been all that has rewarded experimenters at the above stations, even after a couple or more years' trial. At Calicut, we believe, *Coffee stenophylla* has been more successful.

Hybrid coffee. We reprint elsewhere an interesting article that recently appeared in the *Madras Mail* on certain wonderful results alleged to have been obtained from hybrid coffee trees in the Wynaad. The article itself is a very readable one, but we confess we are a little sceptical as to the anticipated results. Who that remembers the great fuss made some years ago at Mr. Brooke Mockett's wonderful Mysore hybrids, and the manner in which their expectations were negatived by results, will have the courage to expect anything very different from the Wynaad hybrid?

Despite our remarks, we hope there will be a brisk demand for the seed, and that the practical value of this latest hybrid will be thoroughly tested.

Male coffee. With reference to our paragraph last week on "male" coffee trees, we have been assured by a planter of great experience that, though the name may be botanically inaccurate, there is certainly a very distinct species of coffee. The non-bearing idea is, of course, absurd, but the crop is irregular at best. There are two other points of special interest about it. One is that an extraordinarily large proportion of the crop from such trees is pea-berry. The other is its almost complete immunity from leaf-disease. The growth of the primaries is upward, approaching that of the "chick," while the leaves are long, narrow, very thick, and of an unusually dark glossy colour.

Specimens of the flowers and seeds would be very acceptable at this office.

American Bicycles. The popularity of the wheel is on the increase in India, and the popularity of American makes is growing faster than that of English. From a patriotic point of view this may appear regrettable, but modern buyers judge a thing according to its worth, and if an American bicycle pleases better than its English competitors it gets the business. The "Columbia," for instance, is a well-known wheel. It can be had now either with chain or chainless. The "Hartford" is another at a lower price. And the same makers offer a "Vedette" machine at a remarkably low figure. Messrs. Spencer and Co. are offering all these machines, and are likely to have a run on them. That buyers will also have many a good run on these machines, is a foregone conclusion.

Coffee in days of old. An old book of the Eighteenth Century states that William Keeling, who was employed in the service of the East India Company in 1607, is believed to be the first among English navigators to make any mention of coffee. He called attention to the fact that the people in the Island of Socotro, where he first met with it, "have for entertainment a thing called *Cobo*, which is a black bitter drink they make from a berry brought from Mecca; this they sup off very hot, and it is reckoned good for the head and stomach."

In the same work it is stated that a dish of strong coffee, without milk or sugar, taken frequently in the paroxysm of an asthma abates the fit, and has been known to remove the fit entirely. Certainly a simple remedy that those suffering from asthma should try.

Good Business. The tea-planter is subject to vicissitudes of climate aud exchange which do not trouble the tea-dealer. This latter business when properly organised and managed is clearly a very lucrative one, says the exchange. From the report of Messrs. Brooke, Bond and Co., we find that the net profit for the year ending last month amounted to £32,128, which, with the amount brought forward, totals £36,861. The company spent £8,623 in additional freehold warehouse premises during the year. A dividend of 15 per cent. is declared, £5,000 is carried to reserve, £10,000 is written off goodwill, and £4,170 is carried forward. Thus in six years the reserve has been built up to £32,000, and goodwill has been written down by £64,000. The share capital of the company is £150,000.—*H. & C. Mail.*

Large breaks. Mr. Phillips, Secretary of the Kangra Valley Tea Association, has expressed some interesting opinions on the subject of the bulking of tea. Incidentally he remarks:—

"The cry for large breaks is fallacious. I have had breaks of 50 chests split up for sale. The larger the breaks the more the Indian tea industry will play into the hands of the alleged 'corner' of tea buyers. Small buyers, who often give the best prices, cannot afford to buy big breaks. I have often found small lots of a few chests bring better prices than the brokers' valuations when the same tea in a full break would probably have fetched less. If the alleged 'corner' of tea buyers does exist, an excellent tactic to employ against them would be to send five chest breaks and keep them bidding till they are too hoarse to go on. Of course teas should be weighed net, but this would result in a serious loss to the wharfingers, or an excessive charge for the simple process. But the time has come when economy of production must be extended to charges other than plantation expenditure. The fight will be against any particular system, but against the vested interes engaged in getting huge profits out of stupid systems that mig have suited our grandfathers, but are not compatible with tea at per pound. The price of tea has gone down 50 per cent. and cost of handling it in London has gone up 10 per cent. in the l ten years."

Corn rubber! It is time a special fund was start to be expressly devoted to the su pression and extirpation of that most objectionable creatu the artificial-natural product-producer. An ugly word th for an ugly business. Everyone is talking rubber just no and lo and behold the following:—

"What promises to be one of the most interesting discoveries recent years is to be credited to Chicago chemists in the alleg production of rubber, of a similar substance in some respe superior to rubber, from corn oil. The value of this discovery evident, especially if, as is claimed, the rubber so produced is mu cheaper than the present product. It is said that, although process is still in an experimental stage, its success is expected, this rubber is derived from vulcanising the oil of corn, and prove particularly valuable in the manufacture of mackintosh since it is not liable to crack or degenerate with time. It is asser that it can be employed in the manufacture of bicycle tyres, as i thin, durable, and capable of withstanding much more pressure th the kinds now in use. The process was accidentally discove several months ago. It is claimed—a fair inference—that if the of corn properly treated and vulcanised will economically produc superior article to the product of the South American rubber t great changes in many departments of the rubber industry may foreseen."

Fruits to eat and those to avoid. In the June *Ladies' Home Jour* Mrs. S. T. Rorer writes of "Fru as Food and Fruits as Poison," a names the kinds allowed on her own table. These "fresh figs; dried ones, carefully cooked; guavas can without sugar; guava jelly; orange marmalade made special home receipt; dates, both raw and cooked, w almonds; persimmons; bananas cooked; and an occasio dish of prunes with the skins removed; blackberries a dewberries, slightly cooked, strained and made into flu mery. The objection to the last fruit, however," says, "is the addition of starch and sugar, which is pro to fermentation. All fruits, whether cooked or raw, sho be used without sugar. It must be remembered that sug in no way neutralises an acid; for this an alkali must used. Sugar sprinkled over an acid fruit masks the obj tionable and severe acid until it slips by the 'guardkeep the palate. Once in the stomach, however, it regains own position and grants the same to the irritating aci Fruits as foods are, then, peaches, apricots, nectarines, r mellow apples, dates, figs (fresh and dried), prunes with skins, persimmons, papaws, very ripe or cooked banan guavas without seeds (fresh or canned, without suga pineapples (grated or finely picked—never cut), mango grapes, sweet plums without skins, sugar cherries, and occasional cooked pear; Bartletts are excellent when can without sugar. The fruits which must be used most spari ly are lemons, oranges, shaddocks, currants, barberr cranberries and strawberries. This applies most empha cally to those persons who are inclined to uric acid con tions. The rheumatic and gouty should also most rigi abstain. The tender lining of the child's stomach can certainly, bear such fruits any length of time; serious res

COFFEE SHADE TREE.

Sun-dried Erythrina Lithosperma loppings, &c., contain per ton:—

61·50	lbs.	Nitrogen.
57·38	„	Potash.
14·92	„	Lime.
13·68	„	Phosphoric Acid.

Seed cured under Messrs. Sutton and Sons' advice.

Orders should be booked early for the 1898-1899 crop of seed from the parent trees of above analysis at Rs.6 per pound containing about 2,000 seeds. *Germination guaranteed.*

Only thornless variety extant, and is not procurable anywhere save from the

MANAGER, ARIENKOW ESTATE,
Shencottah.

ust follow. The ripe, mellow peach is really the child's uit.

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assava cultivation.

The following paragraph appeared in the *Englishman* of the 29th June: —"The Indian Industrial Association has arranged for the elivery on an early date of a lecture on 'Cassaya Cultivaon' by Mr. N. G. Mukherji, M.A., M.R.A.C., the well-nown lecturer of the Sibpur College, Agricultural Depart-ent. Cassava is a kind of potato, not known in Bengal. grows in Assam, where it is called 'Himul Alu' which eans 'Simul Alu', the leaves of the Cassava being like ombon malabrium (Simul tree) leaves. It may interest ur readers to know that as a drought-resisting and readily-tilizable crop Cassava has no equal. Mr. Mukherji has ndertaken to illustrate the lecture with specimens from a rowing plant to a ready-made *halwa* made out of Cassava our. This will contribute not a little towards rendering he lecture specially interesting to the public."—Our esteemd contemporary, says *Indian Gardening*, has been made to ay some curious things; and we take the liberty of making ome corrections in the foregoing paragraph. In the first lace Cassava is not "a kind of potato." The plant which ields the Cassava of commerce is scientifically known s *Manihot utilissima* and also as *Fanepha manihot*. It elongs to the Natural Order *Euphorbiaceæ*. The fleshy oots of the Cassava plant yield the greatest portion of the aily food of the natives of tropical America. It was this ood that Christopher Columbus found the natives consumed nost of; so that the plant has a fairly respectable antiquity. African explorers have also found the natives of several arts of the dark continent cultivating this plant for food. Our household tapioca is made from the roots of this plant, which grows to about six feet high. Its leaves resemble hose of *Simul* tree (*Bombax malabaricum*) which yields the ilk-cotton of India. It should be stated that the flour nade from the root of this plant is extremely poisonous, ut the method by which the poison is evaporated is a edious one. We shall look forward with some interest to Mr. Mukherji's lecture on such a hackneyed subject. Anyone interested in the cultivation of the Cassava plant, and he method of making the starch from its roots, has only to urn to his "Firminger" (Fourth Edition), p. 134, where ull details are given.

The battle of the teas.

We notice that Mr. Mackenzie, the representative of the Ceylon Tea industry in the United States, suggests that an effort should be made to capture the green tea trade from the Japanese. In a letter on this subject he writes:—"We must not forget that, as in England and Australia, so in America, there are only a few million pounds more of the China black tea to be displaced. Against such tea our progress has been comparatively easy. But the vast bulk of the tea used in America is green or unfermented tea. To convert Americans from unfermented to fermented tea would be a long and costly process. The present generation of planters would pay the piper without seeing much of the benefit. Whether or not Ceylon men care to make the tea the American's drink is for them to say. I can but repeat what I previously said, that a few million pounds taken off the London market would greatly relieve the tension there." This tension in the London market has to be relieved somehow, and that fact must be recognised. It is not always pleasant to have to look facts squarely in the face, but the necessity for straining every nerve in the direction of finding new outlets for tea is paramount. A go-as-you-please policy will not do. Every opportunity must be taken advantage of, and every possible encouragement offered to those who have the work in hand. That there is work to be done is certain. Here is a case of a new market for tea being thrust upon us. According to the Consular report on Sicily, just issued by the Foreign Office, a taste for tea is increasing among the upper classes in Palermo, and with a little judicious education the demand would rapidly grow. At present tea can be obtained at only one or two places, and that of a very inferior quality, while the price is very high, being about 8 lire, or 6s. per lb. The duty on tea is about 1s. per lb. if in bulk, and the cases are included in this rate. Taking everything into consideration, the Consul is of opinion that high-class Ceylon and Indian teas could be sold at a fair profit at from 3 lire 50c. to 4 lire 50c. per lb. During the past year the total amount of the commodity imported was, according to the Customs returns, only 1,000 lb. so that Palermo, and, in fact, the whole island, is yearning for more tea.—*H. & C. Mail.*

How to make good coffee.

There is nothing in the grocers' stock that has had so many imitations as coffee; yet not one of them has succeeded in either imitating or driving it out of the market. All of them have shown that it is impossible to imitate it.

When a man comes out of his room and enters the breakfast-room in the morning, and inhales the aroma of good coffee as it fills the whole house, acting as an appetizer, and dispelling his regrets at being tumbled out of bed so early to catch a train, to get to his business, he realizes that a cup of good coffee is one of the best tonics he can have, pleasing his palate, soothing his nerves, and putting him in humour to leave the house in a pleasant manner, helping him to meet his business cares without worrying. Yet all of these blessings depend, says a writer in *The American Grocer*, first, on how the coffee is made, and, second, on the kind of coffee you have been used to drinking. One may be used to drinking Java and Mocha, another Maracaibo, another Rio or Santos, and another coffee with a little chicory in it. Using either kind, it depends on how the coffee is made whether it is good or not. In order to have it made right, the greatest care must be exercised in keeping the coffee-pot clean; to see that the grounds of the previous draw are cleaned out of the spout, where some of the grounds will be sure to stick unless great care is taken—especially when egg is used to clear the coffee. The water should always be measured in the coffee-pot; the coffee weighed, always the same weight for the same number of people. I have been experimenting with kinds of coffee-pots for years, and have obtained results from the old-fashioned one. My recipe coffee is: Weigh or measure your coffee, a water, keeping the quantity nearly as put the ground coffee in a bowl, b put it in the bowl (shell and all), if necessary, to make a paste; b coffee in the pot on the range, give the pot aside for a minute or two

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using unsweetened condensed milk, boiled milk or cream. In this way, using good coffee, you will get a drink fit for the gods. If there is any coffee left over, and you want to use it cold, pour it into an earthen or glass vessel; it will keep better, and not get black or bitter.

The Home Market.

Coffee.—At the Dutch sale on Tuesday, there was a fair demand, says the *P. M. Review*, and the prices showed an irregular advance of from 1 to 2½ cents above the previous sale. In this market there has again been rather a dull tone owing to the very heavy supplies which importers continue to press forward, and in consequence a larger proportion than usual has been withdrawn. Where sales were effected very good prices were in most cases obtained, particularly for home trade descriptions. From recent advices it appears that only a small further quantity of fine Costa Rica can be expected, so that when the present supplies have all been brought to auction, an improvement in prices for this sort may certainly be expected. In the terminal market a fall in the Brazilian exchange and some increase in the daily receipts has produced a dull tone, and quotations have slightly given way, but in no instance more than 1*s.* per cwt.

LONDON COFFEE RETURNS.

—	HOME CONSUMPTION.		EXPORT.		STOCK.	
	1898	1897	1898	1897	1898	1897
For the week ended June 11, 1898.	Tons. 299	Tons. 218	Tons. 684	Tons. 500	Tons. 18,253	Tons. 14,059
For the 23 weeks ended June 11, 1898.	7,054	6,832	12,178	9,442	—	—

Indian Teas.—The demand has not shown much improvement, and with few exceptions values remain unchanged. For the small proportion of fine tea, however, there has been a brisk inquiry at firmer rates, and unless the new tea coming forward shows better quality than those already offered, the supply of fine tea is likely to be more than usually scarce. The descriptions worth from 10*d.* to 1*s.* are in very small compass, the bulk being in second hands, consequently those brought forward on importers' account were freely bid for at rather higher rates. As the new arrivals will probably consist of a fair proportion of these kinds there is not likely to be a further advance, although current rates may be maintained for the next few weeks. The medium and common sorts are in good supply and obtainable at late rates, and, judging from the result of sales recently held in Calcutta, the early imports are likely to increase the stock of these grades and the present easy values may be expected to continue. Telegrams from Calcutta report that 6,000 packages were sold there on the a 10th instant: Pekoe Souchongs were easier, and there will be 7,000 packages brought forward on the 17th instant. from e quantity brought forward here on Monday was 9,895 kages, including 1,509 packages new season's, there good competition for all the finer teas at firm rates.

GENERAL ARTICLES.

THE U.P.A.S.I. SECTION.

[UNDER THE CONTROL OF THE SECRETARY, U.P.A.S.I.

THE Annual Meeting will open at the Cubbon Ro Bangalore, at 2 P.M., on 8th August, 1898. A Comm meeting will be held in the morning, and the Planters' Di will be partaken of at the United Service Club the evening. Any gentleman who desires to subscribe to dinner should address Mr. J. S. Hay, at the Club, as gentleman has kindly undertaken to make all neces arrangements.

The following is the revised preliminary Agenda p for the meeting:—

1. Secretary's Report and Accounts.
2. Confirmation of 1897 Proceedings.
3. Election of Office Bearers.
4. Committee of Enquiry.
5. Currency.
6. Agricultural Matters.
   - i. Lady-birds.
   - ii. Export Duty on Bones.
   - iii. Agricultural Chemist.
   - iv. Leaf Disease.
   - v. Adulteration of Manures.
   - vi. Government Purchases of Cinchona.
   - vii. Import duty on Chemical Fertilizers.
   - viii. Crop Estimates.
7. Registration of the U.P.A.S.I.
8. Finances (including promises of subscriptions for 1898-9
9. Encashment of Currency Notes at Treasuries.
10. Classification of Coffee.
11. The Madras Forest Act, Section 56.

Mr. G. L. Acworth is hard at work in connection the Currency Committee, and has enlisted the service Messrs. Robt. H. Elliott (Mysore) and Thos. North Chr (Ceylon) as vigorous allies. The Committee has, unfo nately, decided that only two planters shall be examine representatives of Southern India and one as spokes for Ceylon, so the Hon. Mr. H. P. Hodgson will no examined, nor will any of the other South Indian plan whose names were recently put before Mr. Acworth. gentleman and Mr. Elliott will have to do the whole w but no doubt they have already received some valu hints from others. Mr. Acworth expected to be "in box" about Tuesday last.

Valuable evidence is also likely to be given by Cap Marriott, of Simla, whose views are understood to b accord with those of the U.P.A.S.I. The Lor Chamber of Commerce was invited to co-operate with Acworth, but declined to "take sides." It issued a no however, informing members that the Chamber would happy to submit to the Currency Committee the nam any gentleman who wished to give evidence.

As regards Lady-birds, inquiries are being made wit view to discovering if there is any likelihood that supp will be obtainable from Ceylon. It is possible that if Ce importations have better success than those of the U.P S.I., the latter may be able to arrange for experime supplies from the former.

The following is Mr. Howard O. Newport's official report the

LADY-BIRD IMPORTATION SCHEME:—

n accordance with instructions received from the Secretary he U.P.A.S.I. in his letter of 28th December, 1897, and subuent letters, I left India on the 30th of January, 1898.

Before leaving, however, I had to proceed to Madras, and ile there received through the Secretary, the Chairman's egram of the 19th January, 1898, and also the authority of, l letters of introduction from, the Madras Government. I Ceylon in the O.S.N.C. vessel *Oruba*, on the 31st January, l arrived in Sydney on the 19th of February.

I was delayed a few days in Sydney and eventually proceeded rland to Brisbane, where I arrived on the 26th February.

The 27th being Sunday, I called at the Secretariat and preted my credentials on the 28th February. I was referred to Agricultural Department, where the Minister for Agriculture once introduced me to Mr. Henry Tryon, the Government tomologist. In my first interview with Mr. Tryon he said he s glad that I had come out then, and that lady-birds were ntiful. I could, he said, get two good months' work in before e winter set in, and perhaps more. As it happened, the winter gan so mildly, that I was enabled to do most of my collecting ring the latter part of April and during May.

Mr. Tryon suggested my going round to various places to ich he directed me, and collecting all and any lady-birds I nd, studying their habits as well as I could and bringing all e specimens I could get to him for identification and comment. is I did, and he pointed out to me the varieties I should lect, and showed me how to identify them. In the same way told me how to identify the bad varieties which I should avoid. this way I visited various localities that Mr. Tryon told me noting where the different varieties were to be found, and udying their habits.

Having done what I could in this way, and made a small llection of some of the commoner lady-birds, which I mounted, d Mr. Tryon named for me, I set to work under his directions get an ice-chest.

I must state here that Mr. Tryon said he had no practical exrience of this part of the business, but would give me what vice he could and work upon notes he had of other missions at had come to the Colony with the same object. I bought an e-chest, therefore, and noted and recorded the temperatures ry carefully. By putting ice into the upper ice compartment ly I found I could only get and keep a temperature varying om 50° to 55°F. But on Mr. Tryon's suggestion, I put ice to the lower compartment also, leaving sufficient room above e ice for some cases of lady-birds. The small compartment I pt dry by a layer of thick felt over the ice and under the ladyrd boxes.

All this took some time to obtain, arrange, test and regulate. nce set going I began the collecting in quantity. I obtained me hundreds of various kinds of lady-birds, chiefly *Cryptomus* and *Rhizobius*, and put them into the ice-chest and atched them carefully. I found, however, that my temperature, though varying between 40° and 45° F., was not enough to spend animation in the lady-birds. I found that the ladyrds, although very sluggish, still crawled about, and once when box accidentally opened, crawled right out on to the felt packg put around them. The thermometer which was laid on top the boxes within the felt covering was then registering 41° 43° F. The lady-birds in a few days died in this temperature found, and I had therefore to set to work and find some ethod by which I could keep a considerably lower and yet even mperature.

About this time it occurred to me that I might get some hints I were to go over the Government Cold Storage works at the ailway Depôt, so I obtained passes through the Agricultural Office and went through them. While there, quite incidentially in the course of conversation with the Government Refrigerating Engineer, I discovered that he had had some practical experience in the very line in which I was seeking information. He had, it seems, received from up-country, while in the employ of the New South Wales Government, some lady-birds and had stored them for some time and finally despatched them to California. He endorsed what I had already found out for myself, that a temperature of 40°F. was not quite sufficient to suspend animation. He said that he had found the lady-birds at this temperature retained just sufficient animation to crawl slowly about and wear themselves out, dying before their time of incarceration was over. He had, he said, frozen several batches of insects right down to Zero and kept them there, and that these had thawed out very well, producing 85 per cent. or so of live insects on being opened out in California.

This I, of course, reported to Mr. Tryon, and he advised, since it was reliable information and the best we could obtain, that we should act upon it. I called upon the Engineer again, therefore, and putting before him all the difficulties I had experienced with my ice-chest, asked his advice.

He very kindly drew for me a sketch of a brine-chest that would keep a fairly even temperature of about 15° to 25° F., which could be regulated, and would yet be portable, properly insulated and containing a dry chamber in which there would be no fear of the cases of insects getting damp. On his advice I took the plans of this chest to several firms and asked for estimates. They went into the details carefully. The chest was to be roughly 3 ft. by 2 ft. by 2 ft. outside measurement, it was to be made of $\frac{3}{4}$ or 1 in. well-seasoned, odourless pine. The outer shell properly screwed together and braced at corners, painted and with handles. Inner shells to consist of two zinc tanks, one inside the other and connected at the top only, with one and-a-half inch space between at sides, ends and bottom, and the two shells to be stayed with wire stays to prevent bulging of the flat surface. The inside (which would form the dry, cold chamber) to be 2 ft. by 1 ft. by 1 ft. 3 in. in measurement.

The tank to be stayed from the outside to the outer shell, and the 3 in. space all round between the outer zinc shell and wooden shell to be filled in with cow hair packing as insulation.

A filling and draining pipe to be fitted to the tank in the jacket space between the tank and outer shell (that is through the packing). The inlet pipe to deliver at the *bottom* of the tank and the outlet to flow from the *top*. The pipes to be of $\frac{3}{8}$ inch compo. That portion of the top that covered hair insulation and jacket, to be fixed with screws.

A movable lid, to be fitted on top and insulated, to be held in position by six brass butterfly thumb-screws. A perforated tube extending from top to bottom of inner chamber to be fixed into it, to hold thermometer in position, with a hole in the lid with plug to allow of extraction without opening case.

The lowest estimate that I could obtain in the City for the manufacture of this case was £9. I reported this to Mr. Tryon, and discussing the matter with him, he said he thought I might be able to get the chest made in the workshop of the Agricultural Department Office at cost price.

The same evening he posted to me the following letter:—

DEPT. OF AGRI., BRISBANE,
21*st April*, 1898.

HOWARD NEWPORT, ESQ.,
Bank St., Upper Melb. St.,
S. E.

DEAR SIR,

The carpenter Skinner after going into the question of cost of your new ice-chest according to the specification of Mr. Napier has intimated to me that he will manufacture one

according to the specification furnished for £3-10-0, *you to find the hair felt.*

Deeming his tender reasonable, I accepted the same on your behalf and commissioned him to proceed with the work with all despatch and it is already commenced. That there might, however, be no delay I arranged with the Under Secretary that the "job" in which he was previously engaged should be temporarily put on one side. I will intimate later when the box is perfected.

It will require about 5 ft. 6 in. cubic of felt.

Yours faithfully,
(Signed) HENRY TRYON,
Entomologist.

This took a few days to complete, meanwhile I had to obtain and deliver the hair felting, thermometers, &c., &c.

As soon as I obtained the brine-chest, I proceeded with it to the Government Cold Storage Works, where Mr. Napier, the Engineer, examined and tested the case and passed a stream of brine through it at a very low temperature, returning me the chest in working order. This chest, he thought, would keep a temperature of about 15° to 20° F.

While in communication with this department I asked if they could supply me free of cost with hair felt sufficient for the packing of my chest, and with ice subsequently. I was informed that no hair felt was obtainable in Brisbane, and that the transport of the ice would cost me more than the purchase of the ice from local ice-works, where it was delivered free of charge.

While the Refrigerating Engineer was testing my case he told me I should need a barrel, taps, India-rubber piping, etc., etc., which I obtained and had in readiness. And as soon as I got the brine-chest back to my rooms in South Brisbane I proceeded to set up the barrel and taps and to connect it with the inlet tube in the chest, connecting a rubber pipe with the outlet tube. The arranging of the barrel entailed some little carpentry work, and as work of that nature took time and was expensive, I invested in some tools and did it myself.

In the barrel I mixed, according to Mr. Napier's directions, ice and salt in the proportion of three parts ice to one of coarse butcher's salt. This formed brine and flowed through into the brine-chest at a temperature of from 8° to 10° F. I found flowing out at about 30° to 35° F., the thermometer in the interior of the chest varying between 15° and 25° F.

As I had to keep a constant flow through the brine-chest it needed constant attention, and I found some difficulty in making arrangements for the chopping up of the blocks of ice every 24 hours, and recording of temperatures, etc., while I was away from head-quarters collecting.

This was not finished and in working order till the beginning of May. Meanwhile I had been obtaining, and testing apparatus, collecting and mounting specimens for identification by Mr. Tryon, finding where the different varieties of lady-birds were to be found, and studying as best I could, their habits, going round under Mr. Tryon's directions to various Orangeries and places in the suburbs of Brisbane among them Milton Ennoggera, Grovely, the Albert and Musgrave Parks, the Botanical Gardens, New Farm, etc., etc. For the week or so previous to the completion of the brine-chest I went up by rail on a free pass to Gatton, and from there rode out some 8 or 10 miles to some orangeries, collecting in bulk. The insects I brought down I put into the ice-chest at once at a temperature of 40° to 45° F., and as soon as possible removed to the brine-chest at the lower temperature.

On the 18th of March I received the following letter from Tryon, together with some apparatus:—

MR. HOWARD NEWPORT,
Bank Street, S. Brisbane.

DEAR SIR,

Herewith I send you four glasses suitable for retaining li specimens of *Coccinellidæ* whilst under observation.

The larger ones I have had placed in a convenient box handling and transport.

Apologising for not forwarding them sooner, a circumst only occasioned by press of official work.

I am, yours faithfully,
(Signed) HENRY TRYON,
Entomologi

(The letter contained a sketch of a collecting bottle sho the quill inserted in the cork.)

For collecting the lady-birds I had a stick some 3 fe inches in length. This was divided into two parts lengthw the parts being fastened together with a screw in the mi on which they worked as on a pivot. There were brass fer on each end, and when not in use the ferrules kept the parts together—the stick then looking like an ordinary wal stick, and being easy of transport. When in use the fer were moved and the two parts of the stick moved round or centre pivot, till they were at right angles—then a st piece of canvass, with pockets at three corners into which ends of the stick were inserted and with a tape at the fo corner, was put on and tied tightly by means of the tape. formed a light tray or collecting umbrella into which I s the lady-birds, and from which I picked them up into the lecting bottles.

With this in my left hand I struck sharply the branch o tree or shrub on which I expected to find lady-birds, w light cane in my right hand, in such a manner as to catch lady-birds as they fell in the umbrella.

The lady-birds, as do several other varieties of *Coleop* on being frightened by the jar, simulated death and w lying in this state on the canvas tray, I took them up in quill, that I had previously inserted through the cork small bottle which I carried in my pocket, and avoiding to ing them with my fingers shook them down into the collec bottle. The quill projected some little distance into the bo and though the insects climbed up to the cork they seldom into the quill or out of the bottle. Some thin paper cut narrow strips and curled up having been put into the b first for the insects to cling to, I was enabled to colle hundred or so at a time in these bottles bofore transfer them to the larger glass jars where I kept them till I c place them on to ice.

The glass jars were about seven inches high by four or and-a-half inches across with open tops. Over the top I some light muslin, and before putting the lady-birds into t from the collecting bottles I picked and placed in the jars s scale covered leaves to supply them with food until I could back to head-quarters.

On arrival at my rooms I then proceeded to put the l birds, usually in batches of 500 or so, upon dry moss into s odourless pine boxes with an inside measurement of 4 in. c These boxes I had to have specially made for me; they we ¼ inch pine and pegged together, the use of nails or being unadvisable on account of possible odour or rust w might have killed the insects. The moving of the insects rather a difficult operation, as some of them, especially

MILLIE & REDMOND, late P. THOMPSON & CO., *Ootacamund, Engineers and Contractors.*

maller ones, *Rhizobius ventralis*, were very lively. I managed his with the aid of mosquito curtains, however, and taking up he insects on a small piece of paper, or more frequently on a iff piece of green leaf, counted them into the boxes. From ne time of putting into the brine chest the boxes of insects ere not touched until I opened them out in India, as it would ave been dangerous to do so. Some of the batches I brought were dated as early as the 11th and 15th of April, the later atches being dated 21st of May. Some of both dates were pened up on the 20th June on the Lower Pulneys when, as I ave already reported, I could unfortunately not detect any gns of life in them.

In collecting I found that the lady-birds were very sluggish nd quiet in the early mornings—on early and cold mornings ey were scarce, apparently getting away on to the stems and vigs in the thicker parts of the bushes. Later in the day ey became more lively, and as the sun grew hot they became xceedingly so, and were very difficult to catch, often flying off y umbrella before I had time to bottle them.

The *Rhizobius ventralis* I found rather rare, and I was not ble to get as many of these as of the other varieties. They ere, however, to be found almost everywhere in small quantities. *ryptolæmus montrouzerii* I collected chiefly from the Albert ark in Brisbane, and *Orcus Astralasia* from several orangeries and near Gatton—some 60 miles west of Brisbane.

The latter species I found were exceedingly difficult to get in e early morning. They seemed to get away to the tops and to the centres of the thicker, and presumably warmer trees. rom about 9 o'clock till 4 or 5 o'clock in the afternoon, how-er, they are fairly plentiful on certain orangeries. The *Orcus ustralasia*. Mr. Tryon advised me to bring out, and I had hopes great things from them. They seemed much the hardier of e three varieties and thawed out better (in a larger percent-ge) than either of the others when I opened out a few from me of the earlier cases, experimentally, before leaving Australia. Being much the larger also they would probably have indivi-ually done more execution among our Lecanium.

The *Orcus Australasia* is a lady-bird some $\frac{3}{16}$ of an inch so across, almost round, and black with three red spots on ch wing case. It is smooth and shiny, while the other two rieties are hairy.

The *Cryptolæmus montrouzerti* is much smaller than the Orcus d much longer than it is broad. Its wing-cases are black and stinctly hairy, but the thorax is of a dull orange yellow.

Rhizobius ventralis was much the smaller of the three varie-es being only about half the size of *C. montrouzerii*. It is ite black on top and very hairy, though often the hairs are ly visible under a magnifying glass. The under side is black so, with the exception of the lower part of the abdomen and nt which is of a dull red color.

Scientific descriptions of the insects would be somewhat long d would not interest, I think, even if I could give them. I ve, however, some mounted specimens with me for those who uld care to see them.

Towards the end of May I discussed with Mr. Tryon the ad-sability of my taking my passage back. The ice and brine ests had given me a great deal of trouble, and had consider-ly curtailed my time for collecting. I had, however, by then thered some

2,540 odd *Orcus Australasia*,
1,500 „ *Cryptolæmus montrouzerii*,
246 „ *Rhizobius ventralis*, and a few others,—

all some 4,300 odd insects. My staying in Australia would ve cost the Fund more money, and as I was anxious to avoid penditure as much as possible, and as Mr. Tryon said that ough I stayed and collected more insect for another fortnight would endanger the lives of those I had, he advised my ing back then. This was settled on the 21st of May. The 22nd was Sunday, and the 24th being a public holiday, I had, to make all my arrangements for ice supply, transport of chests, packing, &c., &c., on the 23rd, and on the 25th May I left Brisbane for Sydney by boat.

Before leaving I called upon Mr. Tryon, Mr. Chataway, the Minister for Agriculture, and the Premier of Queensland, thanking them severally for assistance rendered and kind attention shown.

The Premier was especially courteous, and expressed great interest in our scheme, offering any assistance in his power and very kindly granting me free passes over the Railways which greatly facilitated my movements.

I would specially make mention of Mr. Tryon's unvarying courtesy, and untiring interest, also of the time he placed at our disposal, often when almost overwhelmed with official duties. His valuable advice and his great knowledge, of which he gave us full benefit, deserve our best thanks.

The brine-chest was working all right when I left Brisbane, and I put it on board the S.S. *Leura* with a temperature of 25° F. The Company very kindly allowed me to take it across to Sydney lashed up on deck. I was thus enabled, although the weather was bad, to chop up my ice, mix it with the salt in the barrel, keep the flow of cold brine uniform, and watch my temperatures.

We arrived at Sydney 12 hours overdue the next evening. The chest was working all right, but it was too late for me to move it that evening, so I obtained permission to leave it on board for the night. The next morning I went on board the O.S.N.C. S.S. *Oroya* and presented my letter of introduction from the Queensland Government to Captain McWatt, explaining to him my mission. He was very courteous, but said that he could not possibly make any arrangements by which I could keep the chest anywhere on deck. He, however, asked me if I could not put the insects from the chest into the ship's refrigerator, where, as they would take up little room, he would allow them to remain till we arrived at Colombo.

I saw the Refrigerator Engineer, and as he assured me that they would be kept dry and at any temerature I cared to keep them at, I decided in favour of the ship's refrigerator, rather than forfeiting my passage and endangering the lives of the insects by any delay.

I took out the cases, therefore, and saw them put myself into the refrigerator, in a place where they would get a fairly steady temperature of from 0° to 15° F., and where they would be kept dry. I did not see the cases again until we reached Ceylon, and they were not touched, I understand, by anybody on board. The day before we reached Colombo I got my brine chest up out of the hold and filled it with brine, and as soon as we came into port I went on shore and interviewed the Agents of the B.I.S.N. Company and booked through to Dindigul. The Agent gave me a letter of introduction to Captain Coope of the *Katoria*, who very kindly allowed me to lash my chest up on deck. I then went back to the *Oroya* and transferred my insects from the refrigerator back to my brine chest and took it across to the *Katoria* direct without going ashore. On taking the cases out from the ship's refrigerator, I was much surprised and disappointed to find that the parcel was coated with a film of ice. The only way that I can account for this is that, seeing it was put rather high up in the chamber, when the door was opened, hot air must have got in and the moisture it contained frozen around the cases. This could not be helped, however, nor could I open the cases there to see if the insects were alive. Had I done so, I should have had to keep them alive and feed them from then until I reached the estate, which was impossible. Nor could I have frozen them again without endangering the success of the experiment. I came on, therefore, without delay doing the best I could.

At Tuticorin the brine-chest was lowered into the launch by

means of a derrick and taken to the hotel. *Katoria* I found did not make ice on board, I had therefore, to make arrangements in Colombo, and I brought away 2 cwt. from there. I also telegraphed from there to India for a supply to await me. In this I was disappointed, but fortunately had enough left of the 2 cwt. to carry me to Dindigul, where a case of 2 cwt. more ice was sent up to me by the Secretary, U. P. A.

For two days in Dindigul I was getting tin cases in which to take half of the consignment up to the hills. These being completed, I started off with them. The large brine-chest would have been too heavy to get up the ghâut. The road is so bad and narrow that I do not think I could have got it up at all. I therefore had a small tin lined box made in which I put ice and salt, and in this placed the insects in another tin case. This worked very well, and the temperature on arrival, at the Pillavaly Estate was 25° F.

Within an hour or so of my arrival there on the 20th of June, I opened out five of the cases containing some 2,500 of the lady-birds of all three varieties. These I opened out on a cloth on the coffee trees, some in the sunlight, and some in the shade. Of the first five cases, two I found had got damp, the others seemed dry. The lady-birds, when I turned them out, were mostly clinging to the moss which I had put in the boxes, and they looked healthy enough, only one or two here and there looked seedy.

Most of them were full bodied and soft; their legs and antennæ I could move freely with a needle, and those that I squeezed were full and moist inside. I could, I regret to say, however, get them to show no signs of life. I watched them carefully under a magnifying glass, and tried all I could think of. I allowed some to thaw slowly, and some in direct sunlight. I got hot cloths and put them into that. I tried artificial dry heat and moist heat, I tried softly steaming them, but without any success.

I left them out in the sun, but they only dried and were very evidently dead.

Had the first half consignment turned out well, I had intended taking the second half to the Nilgiris, but since I had no success with the first I took the second lot also up to the Pulneys, and did what I could with them. As I have already reported, I had no better success with the second half than I had with the first half consignment.

Of the latter four cases two, I found, were damp. The others seemed all right, and I cannot account for the want of success in thawing them out here in India. Whether the harm was done in transferring them from my chest to the ship's refrigerator, and back again; whether in the somewhat troublesome voyage after that; whether because the temperatures unavoidably varied latterly—especially during the Railway journey; or whether it was that the whole journey was too long for them I cannot tell. The time that elapsed between my putting into ice the last batch of insects and my opening them out was thirty days *i.e.*; from the 21st of May to 20th June.

Subsequent Consignments.—On the 16th of May I approached Mr. Tryon in Brisbane on the subject of subsequent consignments, and read to him the para. of the U. P. A. Secretary's letter to Mr. Gerrard, Hon. Sec., L. P. P.A., dated 5th Feb. 1898, (copy of which Mr. Gerrard sent to me) in which he said "it may not be necessary, I hope, to appoint an agent in Queensland, but that arrangements may be made with the Department of Agriculture to assist in regard to future consignments at actual cost." I told Mr. Tryon exactly what it was we should need, and he said in reply that he thought it could be arranged. He suggested that if we addressed him through the Dept. of Agriculture he might be able to get it done. He could not, of course, collect himself, but he could get others to collect the insects for him. If he could choose the right time of year and season he could get large consignments of either *Cryptolœmus montrouzerii* or *Orcus Australasia*, as he knew exactly where to send them and how to have them collected.

He thought a £5 note would cover actual cost of collect and keeping in Brisbane some 3 or 4,000 insects, perh more. He could not tell what expenses might be on the voy but did not think they would amount to much. He could of course, send any one in charge of consignments, consequer they would have to be left in charge of some ship's officer put into a refrigerator. He could have them put safely board, but could not of course, guarantee safety on the jour The chief difficulties would be in receiving them in Ceylon bringing on to India, but these would not be insurmounta At any rate he invited correspondence. In view of this r from Mr. Tryon I did not endeavour to make any other arra ments.

Personally, I do not think a consignment would cost n than £10 or so, and we could, if Mr. Tryon thought advis or necessary, send out to him the brine-chest and any othe the apparatus that we now have, to be used in the despatc future consignments.

Accounts.—I am submitting accounts herewith. These s a total expenditure of Rs.4,243-8-0 : one or two other it of expenditure that will show in the U. P. A. Secreta accounts, but which still come under this heading do nc believe, amount to more than some Rs.150 or so. Givi total expenditure for the scheme, so far, of some Rs.4,400.

If, as I understand, the sum of Rs.7,535 now stand the credit of the Fund in the U.P.A.S.I. accounts, should leave a credit balance of over Rs.3,000, which w allow of the importation of a good many consignments at each.

The ice-chest, mentioned earlier in my report, which I chased at first and used for temporarily storing my consign as I got them in, before I put them into the brine-chest, I f I could not bring to India. Having no further use for it ei Mr. Tryon suggested my leaving it in Australia to be sold did so, but since it was then the beginning of Winter a should have got a very small price for it, I left it to be later on during the Spring, when it would fetch very much m This is, of course, the property of the U.P.A.S.I. It will p bly be sold in a month or two from now, and when sold money will be remitted to me, and by me to the Secre U. P. A.

The chest cost originally £4-5-0, and would sell in Spring or beginning of Summer for some £3 or £3- I should think, as it had not been much used and was in order.

Government Order.—(Madras) No. 2294, of 26th May, and correspondence attached. A copy of this Government O with enclosures, was sent to me by the Secretary, U.P.A., after my return.

It is a pity we could not have had Professor Blandf opinion and observations before the experiment was pu hand. This is one of those occasions, however, in which, bably the experiment has called forth the opinion. Prof Blandford seems, either while knowing our scheme in fu have disallowed any possibility of success, or not to have all the facts of the scheme (with regard to the importati lady-birds dormant on ice) before him.

Our scheme as it stood, however improbable of success it have been, at any rate did away, almost entirely, with possibility of the introduction either of Indian scale pests Australia, or of new scale pests on to coffee in India. Prof Blandford was perfectly correct in his deductions that I not an Entomologist, and secondly that our scale pest in is *Lecaniun varide*, but he seems to have been unaware o fact that the U.P.A.S.I., in deciding to send over a plante lack of an Entomologist, was not trusting to the unsk

efforts of a non-entomologist to collect, identify or choose suitable *Coccinellidæ*, but sent him, with due introduction from Government, to an accepted expert, Mr. Henry Tryon, of Queensland, to act under his instructions, on his advice and with his approval, thus insuring, as far as possible, the importation of only the useful and good varieties of *Coccinellidæ* into India.

The first consignment has not thawed out successfully, however, and now that we know where to go to obtain it, I trust that the U. P. A. will have the further benefit of Professor Blandford's opinion and advice.

In conclusion I would remark that the first consignment sent over from Australia to the Sandwich Islands failed, I am given to understand, in much the same way, and that the planters there did not let the matter drop, and that subsequent consignments not only thawed out well, but did exceedingly satisfactory work, as we all know.

Unless we have advice directly to the contrary, from some such expert source as Professor Blandford, I trust that the U.P.A.S.I. will also not allow the matter to drop, but import further consignments to be experimented with, from the balance of the fund that is still in hand.

HOWARD NEWPORT.

YERCAUD,
4th July, 1898.

A CO-OPERATIVE SALTPETRE REFINERY.

(*Contributed*).

YOUR issue of 9th instant contains the following note:—"It has always struck us as very curious that South Indian Planters, with their fondness for expensive English chemical manures, should not have used the crude Indian saltpetre more than they have. * * * * The true saltpetre is nitrate of potash, and contains a large percentage of nitrogen. It is very cheap, about 80 rupees or so per ton, compared with the expensive nitrate of soda."

This note opens a large subject, in which I take great interest, and I should much like to know exactly what produce you refer to when you speak of "crude Indian saltpetre." If you use the term in its general and official acceptation, *crude* Indian saltpetre is not available to planters. A deal of confusion exists in regard to Indian saltpetre, and the term "*crude*" is often employed in a very loose way. Some little time back a brother planter told me he was using, or going to use (I forget which) "crude saltpetre" as a manure; but when I asked him what he meant by "crude," he could not tell me; and when I said he could not possibly refer to crude saltpetre of Indian manufacture, he replied "I don't know where it is made; all I know is that the agents from whom I am buying call it "crude." I will try and make the difference between crude and refined saltpetre of Indian make, clear; and you must pardon me if, in this attempt, I deal with technicalities a little.

Saltpetre manufacture in this Presidency is carried on under the *ægis* of Government, owing to the large admixture of sodium chloride that nitrous earth always contains. Two kinds of licenses are issued by Government. The first, or *A* license, is granted to the Upiliya, who collects the nitrous earth, runs it through a primitive filter, and boils the nitrous liquor. The product resulting from this preliminary process is known officially as *crude* saltpetre, and contains a large proportion of sodium chloride, with other impurities. If, when you speak of "crude Indian saltpetre, you refer to this, it is beyond the reach of planters, because the *A* licensee, or crude saltpetre manufacturer, is bound by the terms of his license to take this crude product to the *B* licensee or refiner. The sale of crude saltpetre to anyone but a refiner, is a criminal offence. The *B* licensee, who pays Rs.30 or thereabouts for his license, then educes the sodium chloride under the supervision of a Government Amin. This process—the eduction of the salt—depends on the fact that, whereas the solubility of saltpetre increases rapidly with elevation of temperature, the solubility of sodium chloride remains constant (practically) in either cold or hot water. The crude saltpetre is dissolved in water, and when a saturated solution is obtained, it is poured into an iron basin or boiler. Under this a fire is kindled, and as the menstruum decreases in volume by evaporation its capacity to hold sodium chloride in solution diminishes in a corresponding ratis: while the increase in temperature compensates for loss of volume in the case of nitrate and potash, and this is consequently retained in solution. As the sodium chloride is precipitated, it is scraped from bottom of the boiler, stored in a locked godown, of which the Amin is in charge, and periodically weighed and destroyed. After the eduction of the salt, the supernatant liquor is poured into vessels, which are usually barried till their mouths are flush with the ground. As this nitrous solution cools, the saltpetre crystallises out. The product now obtained is called *refined* saltpetre, and it is this that is available to the public. Saltpetre once refined is by no means pure, and the process I have described may be repeated again and again, each succeeding crop of crystals being purer than the last, and consequently of higher commercial value. After what I have said, I take it that you allude, in the note quoted at the beginning of this letter, to "refined" *not* to "crude" saltpetre.

Whether crude saltpetre, with its large proportion of contained salt, would be of much value as a manure for coffee, is a question. If it would, there should not be much difficulty in inducing the Revenue Board to permit its sale to *bonâ fide* planters, under a guarantee that it would be used solely for manurial purposes, and that no attempt would be made to educe the contained salt. But the ways of the little tin gods are sometimes curiously perverse, and it must not be taken for granted that such permission could be obtained.

As to the value of refined saltpetre, *i.e.*, the saltpetre of commerce, as a manure, for coffee, there is, of course, not the shadow of a doubt, especially when—as you point out—used in conjunction with bones. If I am right in supposing that you refer to refined saltpetre, I would be greatly obliged if you would tell me where it can be obtained at "Rs.80 or so per ton." A year back I asked a refiner in Coimbatore to say at what rate he could supply refined saltpetre, and the price he named was Rs.290 a ton on rail at Coimbatore. At this figure it would be much more expensive than imported nitrate of soda.

But there is absolutely no reason (save apathy!) why South Indian planters should not manufacture this most valuable manure for themselves at a very small cost. I have several times been on the point of writing to you on this subject. That I have never put my intention into effect must, I am afraid, be ascribed to this same failing. But now that I am launched, I may as well carry on, and, with your permission, will give my scheme in broad

outline. It is this—that South Indian planters should combine, make advances to Upiliyas, and start their own refinery in some district, such as Coimbatore or Trichinopoly, where nitrous earth can be obtained in large quantities. I am absolutely sure that under this system, which would eliminate the middleman—the B licensee—and his enormous profits, refined saltpetre could be outturned at a *much* lower rate than the one you have named, Rs.80 a ton. I have some little knowledge of the subject, and provided a sufficient number of estates—say 25,—would each advance a sufficient sum, say Rs.50, to cover the initial expenditure, (which would be small comparatively), and would guarantee thereafter to take enough saltpetre annually to keep a refinery going, I would gladly undertake to put this scheme on its legs, without remuneration of any kind. The reduction in price of this valuable manure to about Rs.50 a ton would be a sufficient recompense for me. All I should look for would be the repayment of expenses actually incurred in travelling, &c. If a refinery, such as I contemplate could be started, all subscribers would of course obtain their saltpetre from it at actual cost price. The only expenditure other than the purchase of the crude saltpetre at a fixed rate, would be the salary of the writer in charge, say Rs.30 a month. My own subscription of Rs.50 is ready. Will the others be forthcoming? I know of a large building, created many years ago as a saltpetre refinery in Trichinopoly district, which could probably be had for the asking. Even if it were necessary to build a refinery, the cost would be very small; for all that would be required would be a mud hut with thatched roof, and the mud wall all round that the authorities require. I will be glad to hear from anyone interested in the subject, and I have no doubt, Mr. Editor, you will be kind enough to forward all letters that may reach you addressed to "Toda," to your care. Fifty rupees can scarcely be deemed a large outlay for an estate, if the price of saltpetre can be reduced to about 50 rupees a ton. If a larger number of estates than I have contemplated should join, the subscription could probably be reduced. Should this suggestion meet with sufficient response, I will put my scheme into force at once, and I may add that personally I will spare no trouble to make it a success. There are many minor details which will have to be gone into; but of course the scheme need not be elaborated until and unless I find the necessary number of depreciated (or should I say appreciated?) dibs are forthcoming.

TODA.

DEEP CULTIVATION.

IT will not be unprofitable to consider whether deep cultivation and the bringing of the subsoil to the surface is injurious to coffee, especially as the query has been put by "K. D. H." in *Planting Opinion* of the 11th ultimo, as to whether "it is not a mistake to spread your subsoil—probably a stiff clay—over your surface soil." He asks the question in connection with the opening and filling of plant pits, and proceeds to answer it, apparently to his own satisfaction, by saying: "A mistake in more than one sense! If 18-inch pits are required, by all means have them, but directly they have been dug, put the soil back as you found it. Subsoil where subsoil should be, and the surface soil on top. Not as many men do, scrape all the good soil into the pits and leave the infe stuff on the surface; by so doing, I have no doubt plants do very well for the first few years. But do pay in the long run?"

Now this amounts to a sweeping condemnation of a p tice that has been in vogue since coffee-planting was be One would think that anyone would be very chary a doing a thing like this till he had exhausted all the m at his command to ascertain whether the practice had support of science or not. "K. D. H." does not tro to look into the thing at all. It appears to him absur the face of it, and he condemns it straight off.

Professor Henry Tanner's definition of agricultural sci is: "Scientific truths taught by the Practice of Agri ture," and it is one which we would do well to bear in m He says: "As soon as we accept this definition of A cultural science, we are thereby guided into a safe co for obtaining sound and reliable information on the subj The laws of agricultural science will be most accura learnt when they are deduced from the practice of farm and from a careful observation of the conditions w control the production of our crops."

Let us consider whether the practice under discuss and that kindred one of making renovation pits spreading the subsoil from them over the surface, is not a mistake from a scientific point of view. We will suppose that subsoil to be a stiff clay. Well, in the place, it is put in a loose heap beside the pit. In this tion it undergoes a good deal of 'weathering' before b incorporated with the soil in the digging, which weathe renders some at least of the plant food in it, which ne all clays contain as impurities, available. When it is incorporated with the soil in the digging it gets mixed the organic matter of the soil, the effect of which i separate the particles of clay and render it lighter (Tann Moreover the weathering action does not cease, and before it is called upon to supply the needs of the grow plants, it is safe to say that it has become a valuable a tion to the soil. It would be a very good thing if, w the clay subsoil is still lying in heaps, a small quantit quicklime could be mixed with them. "Potter's cl says Liebig, "belongs to the most sterile kind of soil, and it contains within itself all the constituent elements essn to a most luxuriant growth of plants; but their mere sence is insufficient to secure this end. The soil mus accessible to the atmosphere, to its oxygen, to its carbo acid; these must penetrate it, in order to secure the co tions necessary to a happy and vigorous developmen the roots. The elements present must be brought into peculiar state of combination which will enable them enter into plants. Plastic clay is wanting in these perties, but it is imparted to it by a feeble calcination. was first observed in the process of the analysis of sev silicates of alumina (constituents of clay). Many of t are not at all acted on by acids in their natural state, become completely soluble in acid when they have b previously burned. In the natural state of clay, it may digested with concentrated sulphuric acid for hours, w out dissolving in any appreciable quantity; but when clay is slightly burned it dissolves in acids with g ease. . . . The process by which the elements of clay thus brought into a soluble state by fire correspo

o that by which they are brought into the same condition by the action of lime . . . the lime and the heat produce, respectively, such effects upon certain constituents of the clay, that the remaining constituents become soluble." (Phillips' *Principles of Agriculture*). This lengthy quotation was necessary to show some of the effects of lime on clay as well as the good that results from exposing clay to the air. Professor Tanner also says that lime has the effect of lightening clay and sometimes of starting the formation of the double silicates of alumina in the soil, a process which is of the utmost importance in the nutrition of plants. While saying, however, that mixing lime with the clay brought up to the surface in pitting on estates is perfectly feasible, it must be recognised that it is not done. But, as shown, simply exposing it to the weathering influences of the air, sun and rain, would seem sufficient to a very appreciable extent. Even supposing that the clay brought up is impregnated with ferrous oxide, a substance which is unfavourable to vegetable growth, exposure to the air will make it take the higher form of ferric oxide, which is very valuable in the promotion of vegetable growth. Professor Tanner says: "There is another oxide of iron, known as the peroxide (ferric oxide) which is exceedingly valuable in promoting vegetation. When exposed to the atmosphere it absorbs ammonia from the air, and when it is again buried in the soil it yields up its accumulations to the growing crop; and in case of necessity it also gives up a portion of its oxygen; thereupon it takes the form of the lower oxide, and if it were present in any large proportion it would then exert an unfavourable influence upon plant-life. In the ordinary course of cultivation, when the land is again ploughed, *it is brought to the surface, or within reach of the air, when it again secures its full supply of oxygen, and thereupon becomes valuable to vegetation.* (Italics mine.)

It should be the care of the planter, especially one who has only a 9-inch depth of top soil, to deepen it, and the only way in which this can be done is to put in deep drains and bring the subsoil to the surface, not too much of a sudden, but gradually. Phillips quotes the following passage from Professor Low in support of it. "Another purpose sometimes promoted by tillage, and subservient to the amendment of the soil, is the *deepening* of the upper stratum. It is important that there should be a good depth of soil; and thus it is often expedient, for the effecting of a permanent improvement of the surface, to plough up and mix with it a portion of the subsoil, even though this should previously have been infertile. By exposure to the air, and comminution of its parts by tillage, the new material turned up loses by degrees its infertility, and the whole soil becomes amended by a large space being afforded for the extension of the roots of the plants. This is a matter of long experience in the garden, where deep trenching is practised for the purpose of forming or improving a garden soil." Professor Munro, a later authority than Phillips, after considering the objections to trench-ploughing says, "Still we must not forget that to deepen the soil is beneficial, and the best way is to do it gradually. The best time to deepen a soil is before it is to be fallowed or prepared for a root crop." We can understand the objection to bringing up too much subsoil to the surface in forms, because when the subsoil is first turned up it is more or less infertile, and the crop has to *start growth in this weakened soil.* "Still it would be beneficial to do it gradually." In the case of coffee, however, the plant starts life in good surface mould, which has been scraped into the pit in which it is planted, and the subsoil is being got ready to provide it with plant food later on.

In renovation pitting, too, the subsoil is brought up after the supplies are, or ought to be, all planted out. In order to secure the greatest amount of good from this work it is well that coolies should not be allowed to trample on the ground for a couple of months after it has been done. In that time a good crop of weeds will have come up, and these might be hand-weeded and chucked into the pits, the land being immediately afterwards forked up without being turned over. A little soil might be put over the weeds to prevent the escape of ammonia. This digging will insure the thorough aeration of the subsoil, and in the next digging it might be mixed with the surface soil. In conclusion, I may say that I have never known ill-effects to follow from covering the soil with a very heavy dose of subsoil taken from depôt or manure holes 3 and 3½ feet deep; on the other hand, it has always struck me as being just the other way about.

H. G. R.

THE TEA INDUSTRY.

THE good old ship, the *Tea Industry*, was launched in 1837. Twice has she nearly foundered since that important year, once in 1846-47, when the then £50 shares of the Assam Company (£20 paid up) were hawked about the market at 2*s.* 6*d.*, and were practically unsaleable even at that figure; and the second time during the period 1866-68. Both these crises were due to mismanagement owing to the want of experience, and to reckless extravagance and speculation. She has indeed sailed through troubled waters, shipped many a sea and been buffeted by many a storm, but her timbers being sound and her crew loyal she has weathered all, and steers her course under full sail.

The beginning of the industry was small, slow and doubtful, like "the cloud as big as a man's hand." The most sanguine never imagined to what it would grow; none conceived the extent and importance it was destined to attain. What a stride from 46 boxes containing 1,748 lb. (of which 12 boxes containing in all 456 lb. were selected and sent to England), in 1837, to 240,000,000 lb. (India and Ceylon) in this year of grace 1898! The periods of depression of our industry, when it was well nigh on the verge of bankruptcy, have taught all connected with it lessons never to be forgotten. Living and learning, we have profited alike by its failures as well as by its successes. "History is philosophy teaching by example," and we have sixty years of its history for our warning, to counsel and guide us.

The tide of progress has not as yet reached its flood. It is only of late years that the enterprise has really begun to be understood in all its branches. In spite of our accumulated knowledge, we find that some of our principles and systems of cultivation, manufacture, etc., are backward and deficient. We are (we may say) as little children playing on the shore of the great ocean of knowledge. A consciousness has taken possession of us that what we know is small when compared with what we do not know. This is a hopeful sign and doubtless before many years pass over our heads, a new era will be inaugurated, and we shall see many changes in our present methods, changes which will guarantee success in place of failure.

The present is a most critical time; many things, of late, have been, and are still, working dead against us: all connected with the industry are anxiously straining their eyes to see and avoid the rocks ahead. Will the good old ship safely steer her course between her Charybdis and Scylla? We planters are no pessimists, and knowing full well how ably she is officered and how staunch and loyal is her gallant crew, have no fear as to her ultimately reaching port in safety. To ensure such a consummation, however, it is essential that her crew should be united, and that each member, from the skipper down to the youngest "A.B.," should contribute his quota to the general sum of knowledge.

Doctors differ at times, so do we planters, but differences in

opinions are often the best way to arrive at a knowledge of the truth, Moreover, "in the multitude of counsellors there is wisdom."

If we are to succeed and come out victors in the coming struggle we must work shoulder to shoulder, and combined, give "a long pull, a strong pull, and a pull altogether." United we shall stand, divided we shall fall.

When we look back on the illustrious roll of such single-hearted men as Scott, Jenkins, Veitch, Charlton, Bruce, Wallich, M'Clelland Griffith, Fortune, Royle, Hanny, Reid, Geo. Williamson, Jameson, Nassau, Leas and Peal, who have so greatly enriched our planting literature, we cannot but acknowledge that verily "there were giants in those days." Some scientists now affirm that the cultivated tea-plant is deteriorating. Surely we are not going to allow ourselves to follow suit, and run to seed? The industry, now more than ever, requires good, strong, powerful writers. To assert that such men are at present non-existent is absurd. The very reverse is really the case, but for some occult reason or reasons, we seldom see the results of their experiences, researches and observations in print.

An impression appears to prevail that all that is necessary is merely to communicate with the Indian Tea Association or the Agricultural and Horticultural Society. But the publications of those bodies do not reach the entire planting community. We sometimes also write to the dailies, but, as a rule, our discussions are out of place in a general newspaper. The advantages of a cosmopolitan class journal are that all conceivable subjects, technical or otherwise, connected with planting and agriculture generally, can be thoroughly discussed and ventilated to the mutual benefit of all.

Scientists and experts are all very well in their way: they can, undoubtedly, afford us great assistance, but the real backbone of the industry is the *practical* planter. Without his co-operation and assistance little hope can be entertained of the enterprise making much headway.

It is to be hoped that the spirit of enterprise shown by the proprietor of this journal will be duly rewarded by the *planter* being made the bond of union between all in any the least way connected with the great and rapidly-growing planting and agricultural industries in this land of Ind. It is for our benefit, and that of the whole industry as a unit, that we should liberally support its columns with our contributions. "God helps those who help themselves." It is a duty we owe to ourselves and our *alma mater*, the great Indian Tea Industry.—*The Planter.*

THE VALUE OF BONE-DUST AS A FERTILISER.

(*Communicated.*)

WE have only just seen an article in the New South Wales *Agricultural Gazette* on the above subject, referring to certain experiments, the results of which should prove of interest to planters in this colony who largely use bone-dust as a fertiliser.

In 1889 Professor Wagner of Darmstadt carried out a series of experiments which led to the surprising conclusion that the phosphoric acid in the ordinary raw bone-meal was so low in fertilising value when compared with the phosphoric acid in super-phosphate or Thomas slag as to be almost worthless. The estimated low value of bone-meal was based, it is said not only upon its immediate effects, but also on its after-effects. We need not refer at length to the details of Wagner's experiments; suffice it to say that equal quantities of bone-meal super phosphate and basic slag were used, and all other conditions were the same, but the results as regards both the immediate and after-effects of the bone-meal were so inadequate as to lead Wagner to put it down as practically worthless for its phosphoric acid. As a result of these experiments the Association of Bone-meal Manufacturers of Saxony appealed to Professor Märcker, of Halle, to investigate the question thoroughly. Märcker's experiments extended over four years (as against three of Wagner's) and embraced different kinds of crops and soils, and different brands of bone-dust (raw, steamed and degelatinised) representing the best qualities of bone-meal on the market. Professor Wagner would appear to consider that the phosphoric in raw bone-meal, is steamed and glue-free bone-meal is about equal in value.

Where equal quantities of bone-meal aed super-phosphate were used, the results of the trial for early effect were as was to be expected, very unfavourable to the bone-meal. As a result of a variation of the same experiment it was found that there is no advantage in mixing bone-dust with super-phosphate, as the increase of yie practically due only to the super-phosphate. The soils in experiments were sandy ones, which are regarded as being partic benefited by the application of bone-dust. The next seri experiments were conducted to test the fact whether bone-m really valuable for its after-effects, and, if, as it is reported to permanently enriches the land.

With small quantities of super-phosphate there were no str results in the second year, as the greater part of the ava phosphoric acid had already been used up in the first year. W a larger quantity of super-phosphate (but equal to the amou bone-meal) was used, the after-effects were considerable, and th not so good as in the first year, were, nevertheless, very much l than the after-effects of bone-meal. During the third year after-effects of bone-meal as compared with super-phosphate, found to be still less favourable.

Another series of experiments went to show that the after-e of bone-meal are not increased when used in conjunction with s phosphate. The results of the experiments above quoted w appear to warrant one conclusion, viz., that, at all events sandy soils, which are exactly the soils supposed to be benefite bone-dust, the action of the phosphoric acid in bone-dust doe approach the action of the soluble phosphoric acid in su phosphate, whether the bone-dust is used alone or with su phosphate, whether in respect to the immediate results or a effects.

The next series of experiments were undertaken on diff classes of soils, relatively rich in phosphoric acid, having been in previous years for bone-meal experiments. The soils incl sandy soils, loam, humus loam, clay loam, sandy loam, humus s etc. The results were again unfavourable to bone-meal ma These experiments, as Professor Märcker observes, would hav unwelcome result if it were not possible to treat bone-meal in a c way so as to make it more effective, and this can be done by m of a small quantity of sulphuric acid not enough to produce su phosphate but bicalcium phosphate, a form which, though insol in water, is ready available to the plant and little inferior in fer ing value to super-phosphate. This can be done by adding to e 100 lb. of raw bone-meal, 20 lb. of acid of 60° strength (Baum 40 lb. to every 100 of glue-free bone-dust. It is advisable tha bones should not be in too fine a powder, but in a coarse state a the size of peas. The proportions given are said to be the effective.

To quote Professor Märcker's own words: "One may twist turn the matter as one will, whether used with cereals or cruci in sand, clay, or loams, rich or poor in phosphoric acid, in col hot years, whether in respect to its effects upon the first or u succeeding crops, the result is always the same, namely, the ac of the phosphoric acid in bone-meal, whether raw or steamed glue-free, is invariably unsatisfactory, and the author comes to conclusion that it is high time that raw, steamed and glue-free b dusts ceased to be regarded as phosphoric fertilisers; they req previous treatment just as the mineral phosphates do, in orde make effective fertilisers of them, and the author believes that future of the bone-meal industry lies in the preparation of t products which the experiments here recorded have shown to effective."

The inference to be drawn from these experiments is that beneficial action of bone-meal—for that it is beneficial canno gainsaid—is due not to the phosphoric acid, but to the nitroge contains. Professor Märcker is reported to be—at the date of article here summarised—engaged in a series of experiments, the object of ascertaining more exactly the nature of this act As far as he has gone trials have shown that the effect of nitrogen in bone-meal is 70 to 80 per cent. of that produced by nit of soda in sandy soil, and from 55 to 70 per cent. in humus lo It is said that an independent series of experiments carried out Dr. Leichtl and Dr. Voght of the University of Bern in 1 goes to substantiate the results of Wagner and Märcker. In th trials it came out that the effects of Thomas phosphate were superior to those of raw as well as degelatinised bone-meal,

A question that suggests itself to our mind is, to what exten bone-dust affected, *i.e.*, rendered available to plants by the differ climatic conditions (temperature, rainfall, humidity of the air, e in the tropics? Again, is the gradual conversion of insoluble i soluble phosphate sufficient for the needs of perennial vegeta such as tea and cocoanuts?—*Tropical Agriculturist.*

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THE WORK OF LADY-BIRDS.

Report of Prof. Albert Koebele, Entomologist of the Hawaiian Government.

Lecanium hesperidum, Linnæus, is but rarely found on the higher ltitudes; it comes from the temperate zones.

Lecanium longulum, Douglas, is one of our commonest species nd attacks most any plant on the islands. It was this species that aused the smutty appearance of the iron-wood trees in the park efore the introduction of the Rhizobius beetle. It is found in the ropics only out of doors.

Lecaniun mori, Signoret, is found also upon many plants in the slands, on various ferns, guava, etc.

Lecaniun nigrum, Nietner, the commonest of all scale insects in he islands, nearly always can be found upon the Hibiscus hedges, roton, guava, fig trees, etc. It was met with everywhere in the ropics, Fiji, New Caledonia, Queensland, Ceylon, Singapore, Hong Kong and Formosa. In Japan it cannot live out of doors, and is ound only in green houses.

Lecaniun oleæ, Bernard, is not found numerous in tropical ountries, it is rarely met with in Honolulu, only in one instance ave I seen it numerous upon oleander, on Hawaii.

Lecaniun tessellatum, Signoret, another species found here and here, but not numerous as yet, it is more often attacked by internal arasites.

Pulvinaria momeæ, Maskell, and an unnamed species in Kona, are erhaps the only well established species aside from P. psidii men- ioned above. It had first been found upon Mamea Americana, Linni, luring January 1894, but since then it was found on many trees in Hono- ulu, especially mango and fig. No parasite has been observed on he same, yet without any doubt the Cryptolæmus larvæ and those f the numerous species of Hyperaspis introduced from California nd Japan will destroy its eggs. A fourth species of Pulvinaria was ound at Honolulu upon newly introduced Potocarpus from Japan, where the insect is rather rare upon many trees, especially the amellia and magnolia.

Planchonia sp., so far but one specimen was found in Honolulu pon Jacaranda mimosifolia, Prosopis dulcis, Oleander, fig trees, etc., nd it is preyed upon by an internal Chacid parasite to such an xtent that in some instances the scale has disappeared entirely from ome trees. Found at Hong Kong, China, upon fig tree and badly arasiteized. Eryococeus araucariae, Maskell, is found on all the slands upon the various species of Araucaria; it comes from Australasia.

Of Dactylopius we have a great many species in the islands, but et they are with a few exceptions, not worked up. It is one of the ost easily species to introduce, since many of them when full rown will often leave the plant and secrete themselves most any- here to deposit their eggs, often on the roots, in any crevice or ehind leaves on stem, etc., the most minute examination of plants ould not reveal them.

Icerya purchasi, Maskell, is so far the only species present in the slands, I. Aegyptiaca, Douglas, and I. Seychellarum, Westwood, re found on many plants around Hong Kong and may be brought n at any time. The two lady-birds preying on those species in China, viz; Rodalia fumida, Muls. and R. pumila, Weise, were in- roduced and no doubt are breeding upon I. purchasi which once so umerous, can now only be found after careful search.

The above comprise the principal coccids found in the islands, ery many of them are preyed upon the internal parasites that were rought in with their host. Some of these are doing very beneficial ork, often destroying a large percentage of the scales. Only in few nstances were scale insects with internal parasites introduced by e, since there is more or less risk in doing so, it was considered he safest way to follow, only to send the numerous predations nsects found preying on the scales and here we have the numerous ady-birds, some two hundred species of which had been introduced ith more or less success. It seems that those introduced from the ropical countries, or such that are found in similar latitudes to that f the islands with a few degrees, have succeeded best to establish hemselves; especially when the same coccid upon which they fed in heir home was at hand, the increase was marvellous.

Aside from the parasites and predacions insects introduced we ave established two species of fungoids destructive to all the ecanidæ and these have since spread over most parts of the slands. A repeated trial with a third Microcera coccophylla, that lives upon the expense of the various Diaspidinæ, has as yet not been so successful. Still I am confident of also establishing this very valuable agent to eradicate the scales. It was met with in New South Wales northward to Cairns, Queensland. It is present in Ceylon, China Formosa and even as far north as southern Japan, chiefly upon the various Aspidiotus and Mitilaspis, coccids that are always abundant where they occur, owing to their hard protective covering, the enemies preying upon the same have not the equal chance as those preying upon other scales.

At the present time, the most pernicious coccids, at least, have practically become harmless and will become still more so with the increase of their various enemies. I anticipate no danger to the vastly increasing coffee culture by scale insects still present, some of these will yet cause a little trouble to the citrus trees, but I am confident to overcome the same in the near future, as has been done in the past, not with artificial means, but with natural enemies, which, when once established, are an everlasting benefit to the country where introduced.

Of the introduced Coccinellidæ I will give a short account of some of them. To my knowledge, and that of Rev. Blackburn who studied the insects on the islands some twenty years since, only three species of lady-birds were present. Those were Coccinella abdominals, say, an American insect, and no doubt introduced at a very early date, since it has been known to the oldest residents. It feeds upon Lecanidæ and Aphids, is not a fast breeder, and since the introduction of other forms has become much less in numbers. The other two are small Scymnus, S. ocellatus, Sharp, and S. vividus, Sharp, the last at least, has repeatedly been found breeding upon plant lice. Owing to the large quantities of Coccinella repanta on the islands, none of the California forms that live upon plant lice have been observed as yet, save that one visitor on the dinner table in the club on Nov. 10th, viz., Coccinella Californica, Man., intro- duced two years since, yet we are safe to say, several species will turn up in time, if properly searched for. Chilochorus bivulnerus, Muls., was brought to the islands, in 1891, on my trip to Australia and turned over to Mr. A Jaeger, who liberated the same.

Again large quantities were sent to you during Dec., 1894, with all other California forms. The insect was found breeding, both in 1894 and during the last summer, yet never numerous. This is one of the most numerous native lady-birds in California that feed upon various scale insects, and a higher altitude may be suitable for their increase. Sendings of these as all other forms will be made again to the various parts on the other islands direct. Hyperaspis were sent to you in several species, all of these feeding upon the various mealy bugs (Dactylopius), then so numerous in Honolulu. You have forwarded one of the beetles to me at Sydney, some ten months later, as breeding in Honolulu. This has been H. undulate, Say., and I personally have not met with it since, owing no doubt to the enormous increase of other forms, and in consequence the scarcity of its food.

Large numbers of Scymnus were also forwarded to you, and strange to say one of the very rarest California species, S. debilis. Lec., that had not been found again ever since being described over

PLANTING BOOKS.

Map of Ceylon Tea Estates Rs.9; colored Rs.10; Mounted in case Rs.14. Map of Ceylon Plantations, Plain Rs.8. Inga Va, Rs.2-8. Areca Palm, As.12. Cocoanut Planter's Manual, Rs.4-10. Ceylon Manual of Chemical Analyses, Rs.3-10. Tobacco Cultivation, Rs.3-10. India Rubber (now in the Press). Coffee Planter's Manual (now in the Press). All about Spices, Rs.3-10. Coffee Tree and its Enemies, Rs.1-8. All about Grub, Rs.1-5. Brazil as a Coffee Country, Rs.1-8. Cardamoms, Re.1. Ceylon Coffee Soils and Manures, Rs.1-9. All about Aloe and Ramie Fibre, Re.1. Estate Buildings, Rs.4-4. Coffee and Chicory, Rs.1-13. Coffee Cultivation in Ceylon, As.5. Tea Cultivation and Manufacture, As.5. Tea Cultivation in Ceylon, As.6. Tea at high elevations in Ceylon, As.3. Manuring of Tea Estates, As.8. To Economise Labour Supply, As.12. Planting, Pruning and Preparation of Tea, As.12. Salt for Agriculture, As.8. Cocoa, Cocaine and its Salt, Rs.2. On the Importance of Lining, As.4.

Apply "Observer Office,"

Colombo.

forty years ago, was met with in quantities while collecting Rhizobius upon Casuarina. The little beetle in California breeds upon Dactylopius, and very likely on the same in the islands, D. calceolaria, Maskell, on the sugarcane would be similar to that on grass in California.

Of the Australian forms we certainly have the most beneficial of all the lady-birds introduced. Of the Aphis feeding species, Coccinella repanta, Thumb, has done wonders in destroying all the various forms of lice on trees, shrubs and plants. It appears usually first upon the orange plant louse; it has practically cleaned out the taro louse, and with it has cured the formerly so prevalent disease upon these plants, which decayed to a large extent in consequence of the myriads of plant lice present; and recently it has shown its ability upon the newly appeared louse in the cane fields at Kauai, Oahu and Maui. It has spread within one year, after being distributed by you, over all parts of the islands, and was met with both on Hawaii and Maui as high up as timber will grow. How unfortunate, that upon such beneficial friends we should find a parasite destroying the same to a large extent, yet such is the fact. Everywhere the beetles may be found, apparently at rest on the leaves, yet under it and between its legs a small yellowish silken cocoon is found, from which in due time hatches a small black hymenopterous parasite, Centistes Americana, Riley, an insect found all over the world preying on aphid feeding lady-birds. How long the parasite has been present on the islands is hard to say. Undoubtedly it had been breeding upon Coccinella abdominalis many years. It had been found upon the same by Messrs. Miller and Wait at Kona before the introduction of other Coccinellids by me. Leis conformis, Boisd, had been observed breeding upon the orange Aphis early in 1894. Another very valuable lady-bird that feeds upon the various Aphids, and one that had always been found in small numbers only in Australia is Platyomus lividigaster, Mulsant. It was met with in that country from New South Wales up to Cairns, Queensland, and chiefly upon the orange Aphis. It was also noticed that a larger percentage of their larvu were destroyed by a parasite, and owing to this fact the comparative scarcity may be accounted for. On the other hand, there is no such parasite as yet known in the islands, the beetle was never yet found destroyed by the Centistes fly and in consequence may even prove of more value in time than the Coccinella rapanta. Its dusky larva is unlike those of the Coccinella proper; it is covered all over with long spines for protection. The rather small black beetle is nearly round and has the sides of thorax bright sulphur yellow. It is a most active creature.

Of Orcus, O. Chalybeus, Boisd. has increased most upon the various Diaspidinæ chiefly, yet it will feed upon most any scale as well as Asphids. The Cryptolæmus montrouzieri, Mulsant, is in my opinion the most valuable lady-bird introduced into the islands. It is always found upon any plant infested with mealy bugs. It relentlessly follows up that destructive Pulvinaria and devours its eggs. It likewise devours Eriococcus araucariæ, Maskell, infesting the various Araucarias. You distributed the same during 1894, and on my recent inspection it was met with everywhere on all the islands upon its fast disappearing food; around the Volcano, upon the various forest trees and shrubs it was very numerous; from there down Pahala over the lava flows it was numerous upon the scanty bushes growing. In Kona it was met with up to an altitude of 6,000 feet, and here was simply swarming upon Myoporum sandwicene, Gray, infested with Lecanium fillicum, Boisduval, its larva feeding upon the Dactylopius present. On Maui it was found upwards to the timber line and is very likely even higher. That far-famed Vedalia cardinalis, Mulsant, did good work in Honolulu upon the one scale, Icerya purchasii, Maskell. The Crytolæmus beetle did equally well upon about a dozen species of coccids. Many other enemies were introduced for the Icerya scale, and one of them at least, Novius Koebelei, is at present abundant.

Of Rhizobius a large number of species were introduced, and R. ventralis, Erichson, that feeds upon the various Lecanidæ, has become the most abundant. It will feed upon Pulvinaria as well and can at any time be found upon Araucaria trees, preying upon Erioccus; owing to its valuable work, the numerous species of black scales are disappearing. At the Kapiolani Park the Casurina formerly a complete black mass, owing to the numerous Lecanium longulum, Douglas, have entirely recovered from the blighty appearance, and both the beetles and larvæ could be found in any numbers during summer. Of the smaller Australian beetles, Cyreme nigellum, Blackburn, has perhaps increased most, and it was met with everywhere in Honolulu.

With the Ceylon Coccinellids nothing could be done, the di is too great and all arrived at Honolulu dead. One of thes certainly the most valuable found there, Chilochorus circum Gyllh., was later sent over from China. This insect had recorded from Ceylon, India, and Sumatra, and consequen occurrence around Hong Kong could be expected. During months, Oct. to Dec., 1895, a careful search had been made neighbourhood of Hong Kong, and of the insects introduced are breeding in the island.

Synonyche grandis, Thumberg, is the largest known lad that feeds upon Oregma bambusæ, Buckton, infesting the v Bambus plants in the Malay Archipelago, Ceylon, China ar southern Japan. A fresh specimen of these was found upon Aphids in Honolulu on May 6, 1896, and may have bred Verania discolor, Fabr., found near Hong Kong and Swato again met with in Honolulu eleven months later; it feeds Aphids. Coelophora pupillata, Swartz, found common near Kong upon Celtis sinensis, infested with Psylla, was met w summer upon Aphis at Honolulu.

Coelophora biplagiata, Swartz, collected and sent from Kong, has been noticed in Honolulu for several months aft return. Chilomenes quartriplagiata, Swartz, had been obs breeding upon plant lice, and Dactylopius and will prove a va addition. Cryptogonus orbiculatus, Gyllh, is a very common lady-bird. It was found numerous upon orange, etc., at Japan, it was breeding by the thousands upon Mimosa pudi infested with Dactylopius adonidum, Linn,—the common bug,—at Conloong, China, and in Formosa again, it was num upon the tea plants that were infested with Chionaspis there. will be another valuable help in destroying the various mealy The beetle was found very numerous during November at Hon

(*To be concluded.*)

HYBRID COFFEE IN SOUTH INDIA.

As the subject of Liberian-Arabian hybrid coffee has for time past engaged a good deal of attention in South India Ceylon, a few particulars will probably prove of interest, especially in view of the decline in prices of tea in India and C and the prospect within the next two or three years of the ab ment of unprofitable tea lands. A recent issue of the *Kew B* refers to the subject as follows:—

Hybrid Coffee in Mysore.—What are regarded as hybrid coffee pla result of cross fertilisation between the Liberian and Arabian kinds, a cultivated in some disttrict in Mysore. The most recent information re them is that contained in a report on the Manjarabad Forests, present year to the Government of Mysore by Mr. J. Cameron, F.L.S., Supe ent of the Lal Bagh Gardens, Bangalore. It is evident that coffee pla the district believe the plants to be true hybrids. No specimens, h which would substantiate the fact have been received in this country therefore impossible to express an authoritative opinion on the subject.

Mr. Cameron has already pronounced these to be true h and his report contains a description of their origin, which, summarised, indicates that some seed yielded by Liberia which had been planted in or near Arabian, had developed two plants of a new type, combining many of the best pecul of both varieties, two of the most important points being im from leaf-disease, and productive powers of a high orde Cameron, by the way, contributed some interesting articles to *ing Opinion* early in the present year on "Fertilisation of the flower," from which the following is an excerpt bearing question of hybrids:—

Coffee Arabica or Arabian coffee, of which there are several well varieties, known by such names as "Chick", "Coorg", "Nalknad", almost exclusively cultivated in this country from the time the indus started, and it is only within recent years that one or two new varie species have been introduced and cultivated on estates. This fact will the absence of hybrids over such an extensive area, there being no ma make hybrids from. Yet, within the past few years, some hybrids ha their appearance, shortly following the introduction of Liberian coffee tinctly new species. And barring the fact that the two distinct speci been placed in juxta-position to each other the hybrids are the work of But in the instances referred to, man must get the credit of having ma helped Nature by providing a new species for the latter to work upon.

An important factor which has tended to minimise the ch cross-fertilisation between Liberian and Arabian coffee, n standing that many lakhs of the former variety have been p out in the coffee districts during the past decade, is found

act that whereas Liberian coffee blossom opens out within 6½ days f the first good shower, it fades and drops off within 36 hours; vhereas the Arabian variety requires 9 to 10 days to reach the ormer stage, and unless displaced by rain usually retains its position n the branches from 41 to 60 hours.

The first hybrid Liberian-Arabian discovered in Wynaad, about vhich reliable details are forthcoming, was observed amonget some plants grown from seed at stake (raised from Liberian seed) in 1890. This original hybrid tree is now nearly 8 years old. It has never hown the slightest signs of leaf-disease, although surrounded by Liberian and Arabian, both of which varieties have been severely ttacked by the blight year after year. The rapid growth of this riginal tree has been phenomenal, though it is on ordinary bamboo and, at an elevation of about 2,800 feet above sea level, and with an nnual rainfall of about 85 inches. The following figures furnish the rop yielded by this tree:—

1893 at 2½ years old	¼ seer	sound	parchment.
1894 „ 3½ „	„ 3 seers		do.
1895 „ 4½ „	„ 8 „		do.
1896 „ 5½ „	„ 4½ „		do.

r nearly 16 seers within the four years, so that omitting the "virgin rop," the yield was 5½ seers parchment per annum average.

So far experience shows that these Liberian-Arabian hybrids hould be planted 8 feet apart, which would give about 660 trees per cre, and assuming that each tree yielded only 4 seers parchment nnually, equal to $\frac{1}{7}$ of an imperial bushel, the return works out to bout 94¼ bushels per acre, or approximately to a ton an acre all round. An encouraging feature connected with the plants raised rom the seed of this original hybrid is that they have hitherto been ound immune from leaf-disease, although now over 4 years old, vhile their productiveness promises to equal that of the parent tree. t is believed that high, light shade is necessary to protect hybrid coffee, this advantage insuring, *inter alia*, less risk of injury from poorer. One or two noticeable peculiarities with hybrids are that he spike on this variety is always much more forward in the spring han that of either Liberian or Arabian. Moreover, the spike opens n either 7 or 8 days. The crop requires nearly 12 months to nature, and the bean is shorter and bulkier than Liberian, though of course larger than ordinary Arabian coffee. The best original ybrids hitherto observed have all been raised from seed gathered off pure Liberian, while the ensuing generation has also been found airly true to type, notwithstanding the absence of protective rrangements to guard against cross fertilisation during the flowering season.

The following is the history of another hybrid tree, which is, if possible, more encouraging than the instance already quoted. In 1892 a two-leaved seedling rooted in a basket raised from the seed gathered off a pure Liberian, was planted in semi-abandoned Arabian coffee, opened in 1862, together with Liberian seedlings. About a year later, this seedling presented such marked peculiarities that it attracted attention, its foliage differing from the surrounding Liberian plants, while it far outstripped the latter in growth. This land has a South aspect, elevation 3,400 feet above sea level, and an annual rainfall of about 140 inches, and so far this hybrid, which in foliage, etc., closely resembles the original hybrid tree first described, bids fair to equal the latter in all essential points.

It is as yet premature to judge whether hybrids grown from the seed of hybrid plants that have been raised from the produce of the original hybrid tree, will retain all the distinctive peculiarities of the latter; but as the efficient protection of the blossom from external influence is believed to insure the reproduction of the same strain exactly, the reasonable inference follows that it is merely a question of time, careful selection, both of the seed and plants, to effect the gradual introduction of the Liberian-Arabian variety all over the coffee districts. We understand that Messrs. Parry and Co. have already initiated the opening of a hybrid coffee estate in their Vellera Mulla forest. Messrs. Arbuthnot and Co. are alse planting the same species in their South Wynaad properties, while an offer of *a rupee per bean* from an original hybrid tree, for the ensuing 3 years, has been declined by the fortunate owner. Should, therefore, the favourable anticipations now held of Liberian-Arabian hybrids be realised, coffee planters have a fair prospect of profitable returns year by year in South India, and as coffee paid well in Ceylon prior to the inroads of leaf-disease, suitable lands in that island may also eventually be turned into paying coffee estates. —*Madras Mail.*

MARKET REPORT.

COFFEE.

Messrs. R. J. Rouse & Co's Weekly Coffee Report (June 24, 1898) says:—The market at Public sales continues depressed, although the heavy snpplies begin to show signs of falling off, and values are generally easier.

About 2,200 bags East India were catalogued but only a small part sold at declining prices the remainder being bought in as the offers were a long way under valuations.

Central American kinds have also met little or no competition and a large proportion had to be bought in and the rest sold at fully 3/- to 4/- decline; except a few favourite Home Trade marks which realised steady rates.

Futures have been quiet and after some slight fluctuations close about 3d. lower on the week.

Messrs. Wm. Jas. and Hy. Thompson's Report of the Colonial Markets for the Week ending June 22nd, 1898, says:—Bank rate 3%. Bombay Exchange closes at 1s. 3 7/32d. Brazil Exchange 7¼d. Rupee paper 3½% 62½. Silver 27⅛d. per oz.

This market has been very flat throughout the past week, and only a small portion of the heavy supplies offered found buyers at an irregular decline of 2s. to 5s. per cwt. East India is neglected, and only saleable at very much reduced prices. Ordinary kinds shew the heaviest decline, foxy Nicaragua and common Costa Rica being fully 4s. to 5s. lower. Fine colory is about steady.

Daily receipts averaged 5,500 bags in Rio, and 6,000 bags in Santos.

Futures continue quiet, and prices are about 6d. per cwt. lower, viz.:—Good average Santos in Havre, September delivery, fcs. 36.25, in Hamburg pf. 29½, and No. 7 low ordinary Rio in New York $5.70.

To-day's London official quotations are:—

	June	July	Sept.	Dec., '98.	Mar.	May, '99.
Santos ...	28/9	29/-	29/6	30/-	30/6	30/9

We quote:—

Ceylon, mid. to good mid.	96/	@107/	
Do. small to low mid.	80/	„ 93/	
East India, mid. to good mid...	75/	„ 92/	
Do. small to low mid.	58/	„ 73/	
Guatemala, mid. to fine...	68/	„ 98/	
Do. good ord. to low mid...	52/	„ 67/	
Salvador, good ord. foxy greenish...	37/	„ 41/	
Costa Rica, mid. to fine...	69/	@105/	
Do. ord. to low middling.	41/	„ 65/	
Jamaica, good to fine ord.	32/	„ 50/	
Do. greenish to fine colory...	65/	„ 125/	
African ...	26/	„ 29/	
Columbian, ordinary ...	34/	„ 42/	
Do. good ord. to low mid...	39/	„ 59/	
Do. mid. to fine...	62/	„ 95/	

Receipts in Brazil to 22nd June compare as follows with previous years:—

	1897-98. Bags.	1896-97. Bags.	1895-96. Bags.
Rio	4,261,000	3,499,000	2,353,000
Santos	6,104,000	5,030,000	3,039,000
	10,365,000	8,529,000	5,392,000

In Sale—

30 casks & tierces 6 barrels 2 bags Plantation Ceylon, small part sold		58/	@ 105/
1,658 bags East India.	287 bags Mysore, chiefly sold ...	49/	„ 90/6
	565 bags Neilgherry, partly sold ...	44/	„ 88/
	60 bags Wynaad „ ...	45/	„ 83/
	634 bags Coorg „ ...	42/	„ 100/
	112 bags Nellimpathy „ ...	62/	„ —
17,999 bags Costa Rica, part London cleaned, good part sold...		35/	„ 103/6
4,566 bags Guatemala „ „ partly sold ...		28/	„ 83/
1,781 bags Salvador „ „ „ ...		37/	„ 53/
2,378 bags Nicaragua, „ „ „ ...		34/6	„ 110/6
755 bags Mexican „ „ „ ...		38/6	„ 52/
145 bags Porto Rico, bought in.			
88 bags Honduras bought in.			
30 bags Venezuelan bought in.			
13 bags Dominica bought in.			
185 bags Chapada bought in.			
317 bags Vera Paz, & Coban, part London cleaned, partly sold,		55/6	„ 84/
2,662 bags Columbian „ „ „ ...		33/	„ 74/
74 packages Mocha bought in.			
28 brls. 49 bags Jamaica, part sold		38/0	„ 60/

Landed last week ...1,218 *tons. Deliveries* ... 940 *tons. Stock*...18,531 *tons.*
Do. last year ...1,185 „ „ ... 814 „ „ ...14,430 „

TEA.

Messrs. Gow, Wilson and Stanton's Indian, Ceylon, and Java Tea Report, dated June 24th, 1898, says :—

QUANTITY BROUGHT TO AUCTION IN LONDON

FROM 1ST JUNE TO DATE.

	Indian.	Ceylon.	Java.
1898-1899...	30,668 packages.	80,846 packages.	1,912 packages.
1897-1898...	20,366 ,,	73,204 ,,	2,958 ,,

10,273 *pkgs.* INDIAN
24,383 ,, CEYLON
——— ,, JAVA
} Total 34,656 packages were offered in auction this week.

Exports of Indian Tea from Calcutta during each of the last six s are shown in the following table. A larger quantity has been ar taken by foreign markets, so that less of the increase has come to L

The first estimate of the crop for the coming season was telegrap lbs. 158,750,000, of which lbs. 145,000,000 were expected to be av for the United Kingdom, but a later official wire indicates the imp lity of this estimate being realized; should this prove to be t much relief will be afforded the London Market, where imports each of the last two years considerably exceeded deliveries.

Exports of Indian Tea from Calcutta for the last six seasons, 1st April to 31st March.

	1897-8.	1896-7.	1895-6.	1894-5.	1893-4.	189
Great Britain	133,755,749	132,305,762	121,064,671	116,083,134	113,653,791	106,9
Australia and New Zealand	6,777,500	6,156,984	6,749,546	4,845,396	6,223,464	3,8
America	2,486,191	2,864,593	1,090,067	583,644	226,374	
Other Places	5,273,927	5,185,501	4,917,271	3,933,603	3,496,878	1,6
Total lbs. ...	148,293,367	146,512,840	133,821,555	125,445,777	123,600,507	112,5

Arrivals and Deliveries of Indian Tea in London 1st June to 31st May.

Arrivals ... ... lbs.	135,376,760	131,649,920	117,932,193	115,045,443	114,047,595	108,0
Deliveries ... ... lbs.	129,398,640	126,165,318	120,742,734	114,705,198	115,683,327	107,1

Indian. Only 10,273 packages were brought to auction. The Teas sold with rather less spirit than last week, a fractional decline taking place in all but the most useful liquoring kinds. 3,836 packages of new season's Tea were included, the following being some of the averages obtained :—" Budla Beta," 1/1¼ and " Mim T Co.," 1/-.

Week's avg. of New Season's Tea sold on Garden Account, 1898, 4,741 pkgs., av. 7·60d. 1897,——pkgs., av. —d.

	1898.		1897.		1st June to date 1898.		1st June to date 1897.	
	Pkgs.	Price.	Pkgs.	Price.	Pkgs.	Price.	Pkgs.	Price.
Assam ...	936	8·70	—	—	2,063	9·16	1,486	9 07
Cachar & Sylhet ...	183	5·86	—	—	183	5·86	248	6·40
Chittagong ...	—	—	—	—	—	—	—	—
Chota Nagpore ...	—	—	—	—	—	—	—	—
Darjeeling ...	1,559	8·85	—	—	2,109	8·80	1,011	10
Dooars ...	488	6·75	—	—	676	7·24	371	8·50
Kangra, &c. ...	—	—	—	—	100	7	—	—
Neilgherry ...	200	7·12	—	—	300	7·18	73	6·25
Terai ...	391	6	—	—	391	6	106	8·75
Travancore ...	984	6·41	—	—	4,173	6·33	1,331	6·25

Total sold on Garden Account 1st June to date 1898, 10,032 pkgs., av. 7·46d. 1897, 4,267 pkgs., av. 8·25d.

Comparative prices of Indian Tea in London.

		1898.	1897.	1896.	1895.
DUST.	(Fair ordinary, dark liquor) ...	3½d	3½d	4½d	4½d
FANNINGS.	(Red to brown, strong rough liquor) ...	3¾d	4d	5d	5d
BROKEN TEA.	(Brownish to blackish, strong liquor) ...	6d	6½d	7¼d	
PEK. SOUG.	(Blackish greyish, useful liquor).	6½d	6¾d	8d	
PEKOE.	(Greyish to blackish, some tip, useful liquor) ...	7¼d	8½d	9d	
PEK. SOUG.	(Blackish greyish, inferior liquor).	5¼d	5d	5¾d	
PEKOE.	(Blackish greyish, some tip, inferior liquor) ...	5½d	6d	6¾d	

Ceylon. Bidding was animated, and prices for all description firm, the weakness noticed last week in medium grades being decidedly less pronounced, while a strong demand continued to r Teas for price as well as really good liquoring kinds. Averag "Newera Eliya Co. Concordia," 1/-; "Preston," 11¾d.; "Caroli Goatfell," 11½d. Average price 7·59d.

Ceylon Tea sold on Garden Account 1st Jan. to date 1898, 54 pkgs., av. 7·63d. 1897, 505,717 pkgs., av. 7·79d.

Comparative prices of Ceylon Tea in London :—

		1898.	1897.	1896.
PEKOE SOUG.	(Ordinary leaf; fair liquor) ...	6d	6d	6¼d
PEKOE	(Ordinary leaf, little twist; fair liquor) ...	6¾d	7d	6¾d
PEKOE SOUG.	(Rather bold leaf; indifferent liquor) ...	5d	5d	5d
PEKOE	(Somewhat bold leaf; indifferent liquor) ...	5½d	5½d	5¾d

Bank Rate 3 per cent. Exchange on London three months sig Calcutta 1/3 31/32. Colombo 1/3 31/32.

PUBLIC SALE OF SOUTH INDIAN TEA.

(AVERAGE FOR ALL INDIA) *June 24th.*

GARDEN.	Total.		Average.	Broken Org. Pek. or Flowery Pekoe.		Pekoe and Unassorted.		Broken Pekoe.		Pekoe Souchong.		Broken and Souchong.		Fannings, D and Variou	
	Quantity		Price.	Quantity	Price.	Quantity	Price.	Quantity	Price.	Quantity	Price.	Quantity	Price.	Quantity	Pr
Neilgherry ...	**200 p**		**7·12**												
C ...	55 b		7½	55 b	7½	...	...	...	...	...	...	...	...	...	
Curzon ...	80½c		6¾	36½c	7	44½c	6½	...	...	...	...	...	...	...	
Non Such ...	65		7½	20	†8¼	7	9¾	9	7	29	†6¾	...	...	...	
Travancore ...	**984**		**6·41**												
Glenmary ...	119		7	77	7 7½	17	5¾	...	...	...	...	...	...	25	
Goatfell ...	110		5	...	...	47	†5¼	20	†5¾	30	5	...	...	13	2½
Kanan Dev Hil C A.	488½c		6¾	34½c	8½	113½c	6¼ 7	192½c	7 7½	101½c	5¾	...	...	48½c	3¾
Parvithi ...	267½c		6½	96½c	8	89½c	5½ 6¼	...	...	52½c	5¾	8½c	5½	22½c	3

Teas marked thus † are New Seasons.

PLANTING OPINION.

A WEEKLY JOURNAL

WRITTEN BY PLANTERS FOR PLANTERS.

VOL. III.] **COONOOR, SATURDAY, JULY 23, 1898.** [No. 29.

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ADVERTISEMENTS.—From the 1st October, 1897, the charge for ine advertisements will be: 4 as. per line for the first, 3 as. for the second, nd 2 as. for the third and succeeding insertions. Five-line advertisements rom Subscribers will be inserted for three issues for one rupee; non-Subscribers will be charged two rupees.

DOMESTIC OCCURRENCE.—The fee for inserting a domestic ccurrence will be *One Rupee* for each insertion, payable in advance.

N.B.—Remittances should be sent to the Manager, "Planting Opinion," 1/12, Second Line Beach, Madras.

IMPORTANT NOTICE.

The Business Offices of this paper having now been removed to Madras, all remittances should be made payable to the Manager of *Planting Opinion*, 11 and 12, Second Line Beach, Madras, who will also attend to all advertisements, &c.

Letters to the Editor should be addressed to Coonoor, as usual.

SEASON REPORTS.

TO OUR SEASON REPORTERS.

Please post your next reports to reach Madras on Friday, the 29th July, 1898.

Season Reports should be sent to the Printers, Messrs. Addison & Co., direct, and not to *Planting Opinion* Office.

Coorg.

Pollibetta, 19*th July*.—*Weather.*—The monsoon continues extraordinarily light for the time of year; 25 cents is the heaviest fall gauged in a period of 24 hours during the past week, and it has varied between 5 cents and the above figure. *Crops.*—Small stuff, probably berries that did not set, is dropping off; but there is a very decent lot of large berries on the trees. *Labour.*—Some new coolies have been coming in. *Health.*—Very fair. *Interesting Items.*—One estate is said to have succeeded in raising the much-talked of hybrid coffee.

Kadur District.

Balur, 18*th July*.—*Weather.*—Fine break in the weather since 6th July, with fitful showers more like blossom showers of under half an inch. Continuous thunder to-day, which is very unusual at this time of the year. Very light monsoon compared to last. *Plant-diseases.*—The old enemy, leaf disease, is just appearing on some estates, while "Borer" is very bad everywhere. Many thousands of bored trees are taken out daily and burnt. "Black rot" is with us, but not so bad as last year. *Crops.*—Owing to failure, estimates have been reduced all round. A second pruning is being done on most estates, taking off failed wood. *Interesting Items.*—A meeting of the S.M.P.A. is to be held at the Munzerabad Club, Saklaspur, on 1st August. Election of officers and delegates takes place. A cricket team from Hubli plays against the planters at *Chickmuglur* on 24th and 25th. Many estates are for sale, and all proprietors and firms expect good crops *without* manure.

Nellampatty (British).

20*th July*.—*Weather*—until yesterday was as last reported, but then a change seems to have set in, and this morning I gauged 1·45, while there's a strong wind blowing and conditions are much more like our normal monsoon. Rain for week, 3·28 to date 47·36. We had a very distinct earthquake here on Saturday

at about 1-30 P.M. It travelled from west to east, and shook the bungalow pretty severely. It was a most weird feeling. I have not heard of any damage done. *General Health.*—Still bad. *Labour.*—'The Moplars,' who did a lot of good work out this end for the last two years, are this year few and far between. We miss them greatly, as without them fitting and heavy work has to be got out of Malayalams, and trying to get good work from them adds a year to one's life for every day its attempted, besides laying up a store of "little" swears!! *Interesting Items.*—Roads as usual vile, and one or two bridges dangerous in the extreme. One estate is cut off from this end, except by making a detour of about five miles!

THE MYSORE GOVERNMENT GARDENS.

THE Annual Report of the Mysore Government Gardens contains, as usual, a large amount of matter interesting to planters. It is a great pity that the Government of Madras seem to fail altogether to recognise the value to the public of the publication of such experimental work as is being pursued in the Nilgiri Gardens. If it is deemed derogatory to their dignity to have to pass orders on matters on which they evince necessary ignorance, when such matter is published within the pages of the Annual Report, surely there can be no objection to a record of such work, and very valuable work it is, being published as a supplement to the Report. By their present policy of suppressing what they term "technical detail," much valuable information is lost to the very public for whose behoof the experimental work is carried on.

Our little grumble over, we shall turn to the Mysore Report, confining ourselves to the section dealing on plants of economic value, under the heading of Cultivation and Experiment. Among the new forage plants tried were *Dolichos multiflorus*, from California, and the "Florida Beggar weed," *Desmodium tortuosum*, Swz. The latter proved identical with a very common garden weed, and is considered of no special value as a forage plant. Further opinion is deferred for the present.

Of special interest is the necessarily meagre report on hybrid coffee, which is again so much in evidence. Touching on Mr. H. G. Parsons' experiments in Coorg, already described in these columns, the Curator, Mr. J. Cameron, says that three of his seedlings have been presented to the Gardens for careful observation. A few seedlings from grafted coffee are also being watched. There has been much correspondence during the year on this interesting subject. The hybrids seen on the Oossoor and Ubban Estates in Manjarabad are very encouraging.

With the gradually extending interest in fruit cultivation, it is worthwhile to record what has been done in that way in Mysore. Viticulture has not been a success the past year, and owing to scarcity of water and defects in the mode of applying it, the vines in the Daria Dowlet Bagh have made but little progress. However, there is nothing radically wrong with them, and now that a good well has been provided for the vineyard, the results will doubtless improve. Pack of moisture and an over-heated soil had a very retarding effect on the production of grapes. In the Palace Gardens at Bangalore, a small crop of fruit was sold for Rs. 124. Some new varieties of strawberries were imported from England for the purpose of improving the now degenerated local strains.

Operations are still in progress for the local impr ment of *Bhere Fruit*, and trees from good stock now growing in several gardens. A donation of fine containing ripe seed was received from Mr. Step Superintendent of the Gardens at Nagpur. The seed hard, and take four to six months to germinate.

The *Tomato Tree* is doing so well at Nundydroog its cultivation might be profitably extended on the As a preserve fruit it would be found exceedingly u in cantonments and villages. But in this latitude it n an elevation of 4,500—6,500 feet. Trying to grow the plateau and lower down is only a waste of effort.

Excepting the Indore variety, which answers well on the hill and at Bangalore, the new peaches under are very disappointing. The growth is generally stu while some trees have gradually died off altoge Grafting on to the country variety is also not hop owing to the vigorous growth of the latter and the diffi of suppressing stock-shoots which overpower the s Other budding and grafting experiments are in hand.

Strawberries.—The most important introduction du the year was a small consignment of strawberry pl As local varieties of this delicious fruit have been dege ating gradually, it was considered necessary to im better kinds to subsequently replace the worn-out f But being of a herbaceous nature and very susceptib over-heating, strawberry plants require a careful cour preparation before they are safely launched on a voyage to warm countries. Having this in view, writer was in correspondence with the suppliers, Me Daniels Brothers of Norwich, for nearly a year b the plants were actually started for India. The Wa case arrived in December, 1896, with only 30 plants out of a consignment of 100 plants. This must be sidered fortunate, and is wholly due to the exce precautions taken by the suppliers. On arrival, the p were at once placed in a shaded frame, and as growth gressed they were gradually transferred from the th pots in which they had travelled into pots of a larger In this way the plants were preserved through a ceptionally dry season. Later they will be planted o beds to make runners for propagation. The names o four new varieties are (1) Royal Sovereign, (2) Sensa (3) Competitor, (4) Laxton's No. 1. That st berry culture forms a considerable item in local ma gardening is pretty widely known. When the heavy of 1896 washed away many of the gardens at Mahab war, an appeal was made to Bangalore for young pl and it is estimated that 30,000 offshoots were collecte supplied in the course of a few days, although the de was made during the planting season.

The English varieties of apples and pears under tr Nundydroog are still backward in growth. But o whole they are much more promising than the peach and it is probably only a matter of time for their he development in the hill nursery. The experiment of g ing on to the Nilgiri cooking pear has been successf far as indeed has invariably proved the case on the Ni It is also being extended, so that the trial of establi the cultivation of dessert pears by this simple means be very thorough. A few plants of the Florida pea *Conte* and *Kieffer)* were procured from the Bot Gardens, Saharanpore, and planted at Nundydroog.

alace Gardens produced some new apples of superior avour. *The American Dewberry* grows well enough at undydroog, but has not fruited as yet.

A new form of water melon from Australia has been aised from seed presented by Mr. J. Fischer of Sydney, rough his father, General Fischer, R.E. It is a prolific ant, and the fruit, which is oval in form, is large and rnamental. Seed will be secured shortly for distribution.

On the important subject of rubber, we learn that the onservator of Forests, Pegu Circle, Burma, has been good ough to furnish seeds and plants of *Urceola esculenta*, enth., for trial. But it is doubtful if the species will cceed in the dry climate of Bangalore. In Burma, it is extensive woody climber yielding a superior kind of outchouc, and best known to local science by its older me *Chavannesia esculenta*, A, D C. In reply to certain quiries made by Mr. Cameron, the Assistant Director of ew Gardens has been good enough to give the following formation on exotic rubber trees, which will be interest-g to planters and others :—

SIR,—In reply to your letter of the 26th June, in which ou state that European planters not only in Mysore but the adjoining Presidency of Madras are applying to you r seeds of rubber-producing plants, and that you are ishful to know whether this establishment could procure r your Government a few bushels of fresh seed for local stribution, I am desired to inform you that the most nvenient means for obtaining such seed would be from e Botanic Garden in Ceylon, where the crop of seed of *evea brasiliensis* in August next is estimated to be 75,000.

2. Seeds of *Castilloa elastica* may also be obtained om the same source or through Messrs. William Brothers, eed Merchants of Heneratgoda, Ceylon, who advertise oth seeds and plants of this species.

3. It is doubtful whether either of these trees will thrive the elevation suitable for Arabian coffee in Southern dia. They are both natives of comparatively low untries in tropical America and require great heat and oisture. They may very well be tried as shade trees for cao, but so far as we know at present they have not en successfully grown in mountainous districts, and what u report in regard to their behaviour at Bangalore ould appear to confirm this.

(Signed) D. MORRIS.

Of Castilloas (*Castilloa elastica*), there are eight trees the gardens, the largest being ten feet. Considering eir age, six years, this growth cannot be considered good. his of course is due to the long dry season of Mysore, hen these moisture-loving plants make no progress hatever.

Writing on Erythrinas, surely Mr. Cameron makes a ip when he mentions *Erythrina lithosperma* being a ecimen of *E. umbrosa* ? In Java *E. lithosperma* is con-dered so different, botanically, from the other Erythrinas, at it is not classed as being of the same species at all, and not ever named Erythrina. By the way, it is interesting note that the two species of African Erythrinas, *E. umei* and *E. Caffra*, are doing well in the Gardens, where ey have been for the last four years, and the last named now in fruit for the first time.

With regard to fibres, a number of seedlings were raised of Egyptian cotton, but most of them were unfortunately lost during the subsequent water scarcity.

The movable nursery stock of Rhea has been increased to about 10,000, while ground plants are now in a condition to double the above number at short notice. Rooted offshoots are offered to the public at Rs.50 per 1,000, but as yet there is not much demand for them.

Experiments in the local cultivation of the Japanese camphor tree (*Camphora officinalis*) have been started on a small scale. Eight healthy seedlings have been planted out, some in the open and others under partial shade.

Of the West Indian Cherimoyer (*Anona cherimolia*), only three small specimens are growing in Mysore, of which the ones at Nundydroog are doing best. On the Nilgiris, by the way, the best elevation has been found to be about 4,500 feet, though they grow fairly well up to 6,000. We believe though, none of the Nilgiri plants have yet fruited, though those on the Shevaroys fruit splendidly.

Anona Cherimolia.—West Indian Cherimoyer.—At present we possess only three small specimens of this useful tree. Growth has been slow. *A. macrocarpa* and *A. montana* are more vigorous in growth. At Nundydroog, specimens of the former are 8-10 feet high with every appearance of healthy development. These are also West Indian trees.

Cassia eremophylla and a few other new species are growing well in the shrubberies.

Castilloa elastica.—There are eight trees planted in the Gardens, the largest being ten feet. Considering the six years these trees are down, the growth cannot be called good. This is attributed to the long dry season when the species makes no progress whatever.

NOTES.

Rhea. What has been, and is being, done towards determining the potentialities of Rhea as a new product for South India planters or agriculturists ? Will any planter who has made experiments kindly state a few of the results for the information of the planting community ? Reports from Ceylon show that practical experiments are in progress, but it is perhaps too early to say much about results.

Cardamoms. Notwithstanding the moderate quantities of cardamoms which have been offered during the past month, only about one-fourth has changed hands at prices which show a decline of 4*d.* to 6*d.* per pound according to home advices. Supplies are more than ample for the present demand, and we fear that prices will go even lower. Ceylon, Mysore character, small to fine pale bold, sold at 2*s.* 3*d.* to 3*s.* 4*d.* per pound ; Malabar character, medium palish, at 2*s.* 4*d.* to 2*s.* 8*d.* per pound.

India rubber. The demand for India rubber continues good, and prices show a further advance report English papers. Enquiries are generally for medium kinds, which, being scarce, command high prices. Para fine is worth 4*s.* 1*d.* per lb. ; Mozambique, good red, 3*s.* 3*d.* ; fine clear white ball, 3*s.* 2*d.* ; Rangoon, good red, 3*s.* 2¼*d.* ; Assam, good to fine, 2*s.* 8*d.* to 3*s.* 2*d.* ; Penang, fine red, 3*s.* 1*d.* ; good white, 1*s.* 10*d.* ; Borneo, fine,

2*s.* 3¾*d.* Java, good clear 3*s.*; Madagascar, fine pinky and white, 3*s.* 2*d.*

Curing of tobacco. Successful tobacco-growing does not consist only of producing fine healthy plants with good leaves, states our interesting contemporary, the *Produce World*. "To find, and hold, a profitable market, planters must also contrive to secure good curing. Judging from a shipment which has recently reached this country, this latter point is the only one in which Queensland tobacco requires improvement. The consignment included about five cwts., and smokers who have tried it state that it smokes like bird's eye, while the leaf resembles Kentucky. On the high tablelands of the Southern Downs there are some millions of acres suitable for the growth of tobacco, and already Queensland is said to produce more of the 'weed' than the United States. We should advise tobacco planters in Queensland, as we advised those of Jamaica, to take special steps to ensure suitable curing."

A big combination. The complaint of tea planters that the distributing trade is getting more concentrated into the hands of a few big firms, who are thus able to control prices, is about to receive another striking illustration, writes a contemporary. The properties of the Ceylon and Oriental Estates Company, Limited, and other large tea and cocoa plantations in Ceylon are to be amalgamated with the two distributing businesses of Messrs. Cooper, Cooper and Co., and Messrs. Johnson, Dodds, and Co. The result of the consolidation will be that the products of a cultivated area of upwards of 10,500 acres, together with the future output of a further 9,000 acres at present uncultivated, will be distributed by two agencies, the one having 100,000 customers on its books, and the other upwards of 20,000 wholesale accounts. The total capital of the new company will amount to £590,000, divided into 5 per cent. debentures, 6 per cent. cumulative preference shares, and ordinary shares. The freeholds to be taken over are valued at £390,000, and the cash, liquid assets, leases, etc., will represent a further value of £116,000, without taking into consideration the trade marks and valuable goodwills. The board is composed of men, most of whom are intimately connected with the tea trade.

The Currency question. For some time it appeared very doubtful whether the Indian Tea Association would side with the U.P.A.S.I. in respect to the Currency question. Doubts have now been set at rest, however. The Assam branch of the I.T.C. has spoken out, as will be seen from the copy (published on another page of this issue) of a letter from Mr. Tye, the Secretary, to the President of the Indian Currency Committee. This letter declares that the "effect of the present currency policy on the tea industry of India is already seen in diminished profits, as shown by the published accounts of various Tea Companies. Every penny added artificially to the value of the rupee will reduce the profits of the industry this year by £250,000. The distrust which has been created is also putting a stop to the further extension of tea cultivation in India, and will, it is feared, divert capital from India to China, for the purpose of developing the tea industry in the latter country under European supervision, and with modern methods of cultivation and manufacture. future of Indian and Ceylon teas will depend largel their increased consumption in countries outside the U Kingdom, and the burden placed on them by the arti value given to the rupee will put them at a serious d vantage in competition with China tea." These are important statements, and unless they can be refuted sh materially affect the decision of any impartial Curr Commission.

Bananas and plantains. The views we have persist put forward as to the possibili Indian and other planters developing to a much gr volume than has yet been done the trade in banana plantains, says the *Produce World*, are gradually ma headway, we are pleased to see. The subject was the first taken up vigorously by our contemporary, *Pla Opinion*, and now we are reinforced by *Indian Gard* and the *Madras Times*. Both these papers now per that there are great possibilities not only in banana and flour, but also in the establishment of a green trade, especially as there are Indian varieties unequ for appearance and flavour by any bananas in the w The great difficulty in the way of a green fruit trade recognise as, of course, that of cold storage and the sent inadequate accommodation in Indian liners, whi exactly what we have been urging upon planters for mo as well as the great advantage the development of a port fruit trade would be both to India and to this cou Of course, the assistance of some of the Land Records Agricultural officials in conducting experiments as t initiation of the trade, suggested by one of our conte raries, is not to be despised, but we have more faith i utility of planters combining and, through their associa bringing to bear upon the carrying companies that pre which will give them what they want. On almost tropical estate there are great quantities of various allowed to rot, simply for want of the facilities to get to markets where they would be eagerly snapped up ; would be of the greatest assistance in making ends m

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A dangerous move. We do not wish to damp ardour of the writer of the a writes the Editor of the *H. and C. Mail* after a *brief r* of the *Ceylon Observer's* anti-broker crusade scheme, al noticed in these columns. Ceylon planters we kno enterprising enough for anything, and if 1,600 planters to supply their friends with samples of superior tea effect might be electrical. It is well to point out, hov in justice to the distributing firms, that they, or at some of them, have spent large sums in advertisin pushing tea. It is quite true that in the first ins they were apathetic on the subject of Indian and C tea, and so long as China held the field they were co to ignore British-grown tea, leaving planters to d pioneer work, and when the public began to recogni merits of Indian and Ceylon tea, the dealers, wholesal retail, took advantage of the new departure. All true. It cannot be denied, however, that when on public taste for tea had been tickled in the right dire the dealers helped things along very considerably. work of popularising these teas had been left to supply associations, the work of supplanting China

ave made but slow progress. Farmers and fruit-growers ave tried the direct supply system, but the consumer is a ieer customer, and it takes him a very long time to think it new methods. The large tea dealers or distributing rms may be all that the *Observer* thinks they are and more, ut they too have the bugbear—keen competition—to con- nd with, and although large profits are made by success- l tea-dealing, an extensive knowledge of the business is equired. These terrible distributing houses may be great nners, but they have their uses, and we think that were ie advice of the *Ceylon Observer* followed, some regret ould also follow in its wake.

---

he yield of Para Rubber.

There has been such an immense deal published about the rubber questions, that we daresay many of ur readers are not a little puzzled between the different eports in the capabilities of the various species. It will e useful, therefore, to give the following facts. If the only nd available is unsuitable for the better kinds, *i.e.*, is ather high (4,000 to 5,000 feet), with poor soil and a dry imate, then Ceara (*Manihot glaziorii*) may be extensively lanted. It is an extremely hardy plant and needs little r no care. Castilloa (*Castilloa elastica*) must have a rich umid soil, with a hot climate. The same with Para (*Hevea raziliensis*), the yield of which is the subject heading of his paragraph.

At Kuala Kangsar (Straits Settlements) sixty trees, *mostly nly six years' old*, were tapped for some few months ontinuously. The yield per tree worked out to the emarkable average of ten ounces of marketable rubber er tree. Remarkable, that is, for the youth of the trees xperimented on. A few trees, twelve years' old, produced ome three pounds of rubber each.

After dealing with the method of tapping and curing, he writer of the Government report on the subject dds that the Kuala Kangsar trees are mostly planted on et land, subject to flooding every year, though some are n high land. The tree, however, appears to be the most daptable of all the *fichus*, thriving on any ordinary soil, rom swampy sands to an elevation of several hundred eet. The writer of the report is of opinion that it is not ecessary to plant more than 15 feet apart, that a five or ix years' old tree will produce $1\frac{1}{4}$ pounds, and a tree hirteen years' old 5 pounds of rubber without injury. The ost of tapping on a large scale he estimates at 30 cents about 7*d.*) per pound.

Samples of the rubber thus obtained have been submitted o a London expert, who reports that, though imperfectly moked, the product is worth 2*s.* 9*d.* to 3*s.* per pound, and dds that, although Straits rubber is generally much nferior to that coming from South America, it is quite qual to Para.

The Florida velvet bean again.

With reference to the extract from the *Spectator* that we published some weeks ago, the following letter o the same paper, giving the reverse side of the shield, hould be read with interest:—

I send an extract from an American paper received this norning from a nephew who has worked for many years in Florida. "The bean," he says, "is very much in its xperimental stage as yet. I have seen it growing for three years now, but do not care for it as well as two other land-building plants we have in Florida." "Land-building plants are a great help to our Florida sand, but are by no means a fertiliser; and the man who depends on them for such gets (to use a slangy expression because I cannot find the proper term) badly left." "The item that I enclose was copied from another agricultural paper, the *Datil Pepper*. Could you send it *Spectator* as answer to the Orlando letter?"—I am, Sir, &c.

H. F. B.

P.S.—The *Spectator* article mentions the *dry* bean as fit for table use, and I see it was *green* shelled bean which seemed unwholesome, though ripe beans in pods are mentioned as refused by horses.

"I was induced to plant about two acres of them (velvet beans) last spring upon thin land. The beans grew nicely, and made a large amount of forage. As they were recommended as good food—both vines and beans for stock, and also regarded by some as edible table food—we cooked and ate a lot as green shelled beans. Quite a number were sick, some before leaving the table, others later—even to twelve hours afterwards. Two who were not affected, and doubting that the beans were the cause of the trouble experienced by others, ate some cold the next day, which 'fetched 'em.' Some were seriously affected, but all recovered after two or three days. Symptoms were nausea, purging of the bowels, headache, and violent action of the heart. Afterwards, some were fed to chickens, both cooked and raw; some of the chickens died, and the beans were found, on examination, to be still undigested. Horses refuse to eat the ripe beans in the pods, and, in view of our experience, we do not care to urge them by grinding and mixing with other food. Will not our experiment station test and analyse them for poison, and tell us what is its extent, and how to overcome it?"

West Indian Pimento.

In well-informed quarters there is a general belief that the crop of Pimento which will shortly begin coming to hand will be larger than during the past two years, consequently buyers show a tendency to postpone operations in the hope of prices falling, says Messrs. John Haddon and Co's organ, the *Produce World*. For some weeks there has been nothing of moment doing at the various sales, though a small private business has been transacted at about $4\frac{1}{2}d.$ per pound for fair quality. Meanwhile it is expected that, as larger supplies arrive, prices will gradually fall until about three pence will be accepted about the end of the year. Still we see no grounds for Pimento producers despairing, even if so low a mark is reached; it will be twenty per cent. better than before 1896, at which time supplies ran short and prices began to rise until they gradually reached five pence, or double what they had previously been. On the contrary, planters will best consult their own interests by continuing the cultivation of Pimento as an auxiliary to other produce and using their best endeavours, by careful pruning and skilful drying, to turn out only berries of the best quality. The present fall in prices is evidently not due to the overstocking of the market so much as to the hopes of purchasers that the arrival of the new crop will force down values.

Pimento, or as it is invariably named "Allspice" and "Jamaica Pepper," is the produce of a handsome bushy tree indigenous to the tropics of the western hemisphere, and

the value exported from Jamaica in 1890-91 is given as £81,326. The best time for gathering the berries is when they are nearly ripe, as then their essential oil is most abundant, and the aroma which gives the ground product the composite flavour of cloves, cinnamon, and nutmeg—whence comes the name "Allspice"—is at its finest. The method adopted for drying the berries has hitherto been to spread them upon sheets on wooden platforms exposed to the sun, frequently turning and winnowing them until the process is completed. An oil, known as the Oil of Pimento, and an aromatic stimulant chiefly used for adding warmth and flavour to other drugs and in the production of artificial "mineral waters," is also distilled from the berries.

The plant belongs to the genus *Eugenia*, of the *Myrtaceæ* order, various species of which are found throughout the tropics. Besides being largely cultivated in Jamaica and other West Indian islands, it abounds in a wild state in British Honduras, Guiana, and Brazil. Another species is the Malay Apple, or *Bitter Eugenia*—which also yields Pimento—and the *Eugenia Jambos*, which produces "Clove Apples." Various species also exist in the Malay Archipelago and the South Sea Islands, and doubtless the Jamaica species could be profitably cultivated in all our possessions situated in similar latitudes and having approximately the same climate.

More about vanilla. At a recent meeting of the New York College of Pharmacy, five papers were read on vanilla. Professor Rusby treated of the cultivation, etc., of vanilla. He said that there are thirty-three species of vanilla now recognised. The process of curing vanilla-pods and preparing them for packing was described as he had seen it done in South America. Vanilla-packers, he mentioned, are subjected to poisoning, resulting from handling the beans, the symptoms being much like those resulting from poisoning, due, he thought, to penetration of the skin of the hand by oxalate-of-calcium crystals. Dr. S. E. Jelliffe treated of the microscopic side of the subject, and said unscrupulous dealers often used benzoic acid to make a false appearance of vanillin on the beans. The microscope revealed the fraud readily, benzoic-acid crystals being flattened and rhomboidal, vanillin acicular and standing out at right angles from the surface of the fruit. Professor V. Coblentz treated of the chemistry of vanillin and said it was frequently adulterated with a cetanilid. Mr. A. Henning's paper was on the commercial varieties of vanilla. He said that that from the Seychelles Islands, an inferior kind, was the sort chiefly used in England. The Mexican vanilla grown at Papantla had the most exquisite odour, and was the kind used in the United States. The pharmacy of vanilla was considered by Mr. O. Kalish, who recommended an extract made from a formula containing eight ounces of vanilla in a gallon of finished produce. He said that vanillin could never displace vanilla as a flavouring-extract, as it lacks the delicate flavour of the natural bean. In the last bulletin issued from Kew Gardens, attention is drawn to the cultivation of vanilla in Seychelles, which appears to be at present in a comparatively prosperous condition. The cultivation of vanilla, it is pointed out, only dates back to about twenty years ago, and is only now beginning to be thoroughly understood. The Mexican system of allowing the vines to grow under trees nearly wild is almost universally adopted at present, and is a decided improvement on the old system of tra the vine on artificial supports. Nothing pays better vanilla. Its production costs the planter 3 rupees pound, and as prices vary from 8 rupees to 16 r the pound, a net profit of from 5 rupees to 13 rupe the result. This year the average price was 15 r the pound. The yield may be taken to be 200 po an acre. Taking, therefore, an average of 10 rupee acre of vanilla should produce 2,000 rupees. Mo the land in Seychelles is in the hands of private ow and it is difficult to estimate its cost, but it may be t that land can be bought at from 100 rupees to 200 r the acre. It has been stated that landowners are re ant to part with their land, but not much difficulty be apprehended on this score, provided that purch are prepared to pay ready money. There is some belonging to the Government well adapted for va cultivation which can be leased for periods varying nine to twenty-one years.

Coffee and Tea Market. *Coffee.*—The amount brough auction though heavy has sho very decided falling off compared with the last few we says the *P. M. Review* of 25th ultimo. The demand from the country and for export has continued quiet, in consequence, sales were only effected with diffi and generally at a decline. Though the bulk of that off has consisted of Central American sorts, a fair quan of East India was also catalogued, but as offers only made on such a decided decline, nearly the w was withdrawn, and importers have determined to wait there is more disposition to buy. Of the Costa Rica offe the few lots of fine met with a strong demand and full p were paid; the lower grades, however, could only be disp of at a reduction of about 2*s.* per cwt., but at the de there has been more disposition to buy and a fair busi has been done during the last few days. In the tern market there has been very little change, though Brazilian exchange has fluctuated from day to day.

LONDON COFFEE RETURNS.

—	HOME CONSUMPTION.		EXPORT.		STOCK.	
	1898	1897	1898	1897	1898	1
For the week ended June 18, 1898.	Tons. 301	Tons. 279	Tons. 639	Tons. 535	Tons. 18,531	T 14
For the 24 weeks ended June 18, 1898.	7,355	7,111	12,817	9,977	—	

Indian Teas.—The feature of the market has been increased quantity of new tea brought forward, repres ing several districts, but the quality was on the whole fairly good, and the prices realised were irregular. T from the Assam and Dooars gardens were of fair ave quality, the latter, in many cases, showing an improvem and these were well competed for, and brought good pr The former, however, with few exceptions, were no attractive as those previously offered. New Darjeel were more plentiful, and occasionally the quality was be

an the earlier shipments; where this was the case the mand was active at firm prices, while the more ordinary s sold irregularly and at lower rates. Sylhet and chars were generally poor, and attracted little interest, en at the lower prices ruling, and, judging from the most cent information, they are likely to continue undesirable d in short supply in consequence of the extreme drought. the old season's the bulk consisted of the common kinds, lues were mostly easier, and a larger quantity was obtain- le under 5½*d.*, while the few good liquoring lots were well d for at firm rates. A late telegram from Calcutta reports the public sales all kinds were rather firmer, but it pears from the average price paid that a considerable rtion of the teas consisted of inferior kinds. The public les here comprised 10,273 packages, 1,094 being with- awn, and about the same quantity will be brought forward xt week.

gar planting. Sugar has mainly attracted the attention of Europeans from its anufacturing and refining side, so that in advocating an amination into its possibilities from the planter's point view, we are taking up a somewhat novel position. Yet, the following excerpt from the London *Grocer* is correct, r. Leather seems to think there are great possibilities, en from the ryot-managed industry. With the decay of e sugar-cane industry in the West Indies, owing to mpetition from the beet-root growing countries, we tice the simultaneous rise of the sugar-cane industry in r great Indian Empire, writes our contemporary. A great petus has recently been given to this country by the overnment of India, which is determined to set it upon a roper scientific basis. The number of acres which is under ltivation in India is rising every year, and at the present oment there are about three million acres of land devoted the culture of the sugar-cane. Though most of the sugar grown in the North-Western Provinces and in Bengal, the op is, nevertheless, very well disturbed throughout the hole of India. Indeed, in many parts every village has at ast one or two plots. At the rate matters are progressing, e enthusiasts have some justification for the belief that hatever attempts may be made to make sugar dearer by gislation will probably be neutralised by the increased out- t in India. There the natives working in the sugar-cane elds can live on a handful of rice and a pinch of curry-powder er day, and consequently wages are at an inconceivably w point. Add to this the great extension of the Indian- ilway system, and it becomes clear that India will soon be one of the cheapest sugar-producing countries in the world. At the present time India exports about 63,000 tons of sugar per annum. It is true that 100,000 tons of sugar is imported, but this is chiefly of a very refined kind, and it is estimated that when India takes to sugar-refining in earnest, instead of contenting herself with producing raw sugars, all importations will cease. In India, too, it does not appear to be so necessary to resort to heavy artificial manuring as it is in the West Indies, where, it is said, the soil is more or less exhausted. The output per acre is from one to four tons of sugar. At a recent meeting of the Liverpool Section of the Society of Chemical Industry, Dr. J. W. Leather read an extremely interesting paper, in which he described the investigation which he has recently concluded on behalf of the Government of India, relative to the growth of sugar-cane and the manufacture of the raw sugar. The paper is well worth reading and studying, but most of it would only be appreciated by those who are actually engaged in the industry. What interests us most as a trade is, of course, the certainty that India will be a great producer of sugar in the near future. And little wonder that she will be when we reflect upon the advantages which we have already mentioned as possessed by India, and compare the startling fact that, whilst in India three or four tons of sugar per acre is considered to be an average output, in Europe the maximum yield is only 1·28 tons per acre, and in the West Indies 1·8. Mr. Sigmund Stein said in the discussion which followed the reading of Dr. Leather's paper: "It is astonishing that in the crude state of the sugar industry in India such a large yield per acre can be produced. Evidently we need not fear that the near future has dear sugar in store for us."

COFFEE SHADE TREE.

Sun-dried Erythrina Lithosperma loppings, &c., contain per on:—

61·50	lbs.	Nitrogen.
57·38	„	Potash.
14·92	„	Lime.
13·68	„	Phosphoric Acid.

Seed cured under Messrs. Sutton and Sons' advice.

Orders should be booked early for the 1898-1899 crop of seed from he parent trees of above analysis at Rs.6 per pound containing bout 2,000 seeds. *Germination guaranteed.*

Only thornless variety extant, and is not procurable anywhere save rom the

MANAGER, ARIENKOW ESTATE,
Shencottah.

LETTERS TO THE EDITOR.

SALTPETRE: A QUERY.

SIR,—Can you tell me the Canarese and Tamil names of the right sort of crude saltpetre you mention in last week's paper, and also how to tell it from the wrong sort when one sees it?

CHAS. H. OLIVER.

MELEHANKA, BANGALORE,
15*th July*, 1898.

[Will "TODA" please reply?—ED.]

LADY-BIRDS.

SIR,—There is a rumour that all the "lady-birds," that were to do such a wonderful lot of good to the planting community, have died on the voyage to India. If this is true, it proves conclusively what I wrote to you a year ago, viz., that the introduction of the lady-bird in hopes of getting rid of the green bug is all "Bosh."

"BOSH."

KADUR DISTRICT,
18*th July*, 1898.

THE WIND ON THE ANNAMALAIS.

SIR,—I have just seen in your issue of July 2nd a query as to how wind treated us this year on the Annamalais. There was, if anything, more than usual on the northern slopes, and the coffee looked very blown when I saw it early this month. On the western slopes, or rather, plateau, we have had no wind at all, though our rainfall is 25 ins. less up to date than we gauged last year, when the fall, judging from Calicut and Cochin, was abnormal, and amounted with us to 150 ins. We may expect something between 90 and 110 ins. in an average year, as far as

I can judge. I may add that this monsoon has been perfection for planting, and that plants put out a fortnight ago have made roots at a great rate. We evidently get no wind at any time on properly selected ground.

E. G. WINDLE.

KOTAGIRI, *July 15th.*

ARTIFICIAL MANURING.

SIR,—In these days of short crops and talk of "coffee going out," it is difficult to understand why artificial manures are not more generally used. I am in a district where very few, in fact no planter uses more than the old fashioned bone and poonac, which he has applied to his exhausted trees forty years ago. Except in a few cases *lime* has never been tried, and from my experience I have found lime to be very necessary, especially in the growth of young vacancies. A few planters have tried nitrate of soda, but they forget that the nitrogen does not enter into fixed combination in the soil, but nitrate is dissolved in the soil water, and unless taken up by growth of some kind, it must pass into the drains, or into the subsoil beyond the reach of the roots.

Superphosphate has (I think I may say) *not* been tried in this district, but from my experience in other districts, it is a most wonderful manure, especially in a heavy soil.

Before using artificial manure, the local conditions must be thoroughly understood, the weather since the application of the manure must be looked to, and above all one must have a knowledge of the soil and its constituents.

A book which ought to be as important as a check roll should be kept, and fields marked to show what manure has been applied and when. Nowadays superintendents have to leave estates for many reasons, chiefly the impecuniosity, of proprietors (or as in my estate the change of proprietors), and unless they keep a record of manure applied, &c., the in-coming manager works in the dark and probably spoils a lot of good work done by the former man.

A certain proportion of manure of any kind always lies dormant for a time, and the coffee tree must be manured regularly if regular crops are wanted, and in this part of the world this important work of manuring is greatly neglected.

GREEN BUG.

Kadur District.

GENERAL ARTICLES.

THE U.P.A.S.I. SECTION.

[UNDER THE CONTROL OF THE SECRETARY, U.P.A.S.I.]

THE Director of the Government Cinchona Plantations, Nilgiris, reports that the system of purchasing bark to supplement the yield of the plantations has so far been a success from the Government's point of view. As there is a considerable saving effected in freight and Home charges by the opening of a market at Nedivattam, it is presumed that the planters whose bark was accepted have benefited.

The Secretary of State has intimated that Her Majesty the Queen, Empress of India, has been pleased to accept the address and the casket presented by the United Planters' Association of Southern India on the occasion of the celebration of the completion of the sixtieth year of Her Majesty's reign, and has commanded that Her Majesty's special thanks be conveyed to the Association for this loyal offering.

An important suggestion regarding the employm an Agricultural Chemist in Southern India has ema from the Mysore Government, through the British Res It will be considered by the U.P.A.S.I. A short tim there were expectations that an Agricultural Ch would be engaged by the above Government for serv the Mysore State alone, but it has been decided that would not be work enough there to occupy the whole of such an expert.

THE CURRENCY QUESTION.

[VIEWS OF THE INDIAN TEA ASSOCIATION, ASSAM BRANCH

MR. J. BUCKINGHAM, C.I.E., of Amgoorie, Chairman, Assam I Indian Tea Association, has addressed to the Secretary, G ment of India, Finance and Commerce Department, Ca the following letter dated 20th June:—

SIR,—With reference to despatch No. 70, dated Calcutta, the March, 1898, from the Government of India to Her Majesty's tary of State for India, I have the honour to lay before you th of tea planters representing the Assam Valley.

We cannot help viewing with the greatest alarm the recom tion of the Government of India that, under the present cont state of our currency, a sum of 10 crores of rupees, or ever should be annually abstracted from active circulation and down as a reserve to be held against note issue. Clause 12 despatch states "that it will be seen that proposal is no new but one which has from the first been advocated by the Gover of India." We respectfully submit that the closing of the mi already accomplished its object, as far as the Government of is concerned, by placing its revenue on a satisfactory footi this has been done at the cost of commerce and export trade cannot, therefore, see any reason for now introducing a met still further increasing the present stringency of the money m however necessary it might have been considered in 1893.

It has been very rightly stated that injury to trade cannot be a as an argument in favour of any measure, until the facts upon it is based are produced. I trust, therefore, that the fol summary of facts, brief though it is, may be accepted as a p the existing depressed state of trade generally, and especially tea industry.

The Calcutta tea market is regulated entirely by the L market, *i.e.*, if prices fall in London, there is an equivalent Calcutta.

With exchange at 1*s.* 2*d.*, 1lb. of tea sold at 8 annas in Calc equivalent to 8·86 pence in London, that is taking freight, a and warehouse charges into account; but, with exchange at the equivalent of 8·86 pence in England is only 7 annas in Ca and so it is that, for every penny rise in exchange, we, the prod incur a dead loss of ½ anna per lb., or a little over 6 per ce there was a corresponding rise with exchange in the price of London, our position would be stronger, but unfortunate opposite is the case; there has been for years a gradual fall value of tea, and this, coupled with the high bank rate, causes little anxiety as to the future of tea.

Charges connected with the manufacture of tea have been re to the lowest limit, and the margin left for a profit with exc at 1*s.* 4*d.* is simply *nil*, except under particularly favourable c stances in the matter of locality and labour.

Taking, therefore, the yield of Indian tea at 150,000,000l loss to growers on every 2 pence rise in exchange would b 7 million rupees. The actual amount of loss, as shown by the exchange on 150,000,000lbs. of tea, would be a little over 9 rupees, but I have deducted 22½% for home charges in the tea sold in London (the balance of 77½% being remitted to I cover cost in production), and I have also deducted 22½% for charges from the realization of teas sold in Calcutta.

The market value of last year's crop of tea represented 8 crores of rupees, and for the last eight years the average increase in yield has been about 7 million lbs.; the additional

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.B.—We are prepared to indent home for any and all kinds of estate requirements not kept in stock or enumerated in this list.

TATE TOOLS—			Rs.	A.	P
Round Eye Felling Axes (steel), 4 lbs. weight	per doz.	...	20	4	0
Do. do. do. 2½ „ „ „		...			
Pick Axes, 6½ lbs. (well steeled)	„	...	16	8	0
Bill Hooks, (Barcutties) 12″ blade, bright steel	„	...	18	0	0
Do. Kentish, with back, steel, 2¼ lbs. wt.	„	...			
Bushel Measures (Galvanized), Imperial Stnd.	each	...	15	0	0
Buckets (Galvanized), various sizes ...	from per doz.	...	16	8	0
Watering Cans, (Galvanized) "Nonsuch," 2 gals.	each	...	4	0	0
Do. do. do. 2½ „		...	4	8	0
Steel Digging Forks. *Steel strapped all along handle.*					
4 & 3 pronged	per doz. Rs. 39-0-0 &		33	0	0
Grass Knives, socket handle, steel ...	per doz.	...	12	12	0
Hammers, 6, 7, & 8 lbs.	per lb.	...	0	6	0
Handles, Pickaxe, 3 ft. long (English Ash) ...	each	...	0	12	0
Do. 30″ long 3¾″ circ. (do) ...	„	...	0	6	0
Do. 16″ „ 3″ „ (do) ...	„	...	0	4	0
Do. Digging Fork	„	...	0	14	0
Lining Ropes, abt. 250 feet	„	...	8	12	0
Mamooties, Steel 10″x 8″ or 9″x 7″ abt. 4 lbs. wt.	per doz.	...	12	12	0
Do. Iron 10½ x 8½ or 9½ x 8 abt. 4 lbs. wt.	„	...	7	8	0
Quintanies, Steel 15″ × 6,″ 5½ lbs. weight ...	„	...	18	0	0
Do. 9½″ x 5,″ 3¼ „ „ ...	„	...			
Manure Pans, (Galvd.) 7″ deep x 18″ top x 10″ bottom	„	...	23	4	0
Pitting Bars (Alavangoes), well-steeled points, 3″ spade end, 45″ long, 9 lbs. wt.	„	...	16	8	0
Pruning Knives, English make, best steel, 4″ blade	„	...	9	0	0
Do. Saws, do. do. 14″	„	...	18	0	0
Seamless Bags (for coffee transport to coast) 42″ x 20″	„	...	9	12	0
Shovels, round nose, T handle	„	...	12	12	0
Tea Transplanting Spades, steel, sharp edge ...	each	...			
Tea Sieves, brass No. 6, 8, 9, 10, 12 mesh	„	...	6	0	0
Do. do. bottoms do.	„	...	3	8	0

A REQUISITES—FOR PACKING.

HESTS—MADE TO ORDER. *Deld. at Mettapollium, Palghat, Calicut.*					
Full Chests 24 x 19 x 19 (outside) ½ in. planks	each	...	1	1	0
Half do 16 x 16 x 16 („) do	„	...	0	13	3
Quarter do 14 x 12 x 10 („) ⅜ do	„	...	0	9	3

Any other dimensions at proportionate prices.

EAD—BEST INCORRODIBLE. *Any other sizes obtained to order.*					
127 sheets 37″ x 22″	per case of 2 cwt.	...	32	0	0
or 218 „ 25″ x 19″	„	...	32	0	0
„ { 40 „ 84″ x 22″ for sides; 80 „ 21″ x 16″ „ tops and bottoms }	„	...	30	0	0
„ { 72 „ 65″ x 19″ „ sides; 144 „ 14″ x 14″ „ tops and bottoms }	„	...	30	0	0
older (Sticks) per case of 1 cwt. Rs. 50, or	per lb.	...	0	8	0
oldering Fluid	per bottle	...	2	0	0
loop Steel ½″ (abt. 3,000 feet to the cwt.)	per cwt.	...	15	0	0

COFFEE PULPERS—*To order only. One month required for delivery.*
For Arabica. For Liberian.
Agents for:—MESSRS. WALKER SONS & CO., LD. Rs. A. P
Price list and illustrated catalogue sent on application.

Copper Punched Cylinder cover 4′ x 2′ ...	each	...	25	0	0
Do. Disc cover	„	...	9	0	0
Do. do. for Liberian ...	„	...	12	8	0

COIR MATTING—In rolls of 60 feet long x 3 feet wide.

Estate, Double, (coffee drying, etc.) Nos. 1 and 2, Rs. 2-8 &			2	4	0
Ordinary Bungalow Twill			7	0	0
Fine Machine-made Yarn			12	8	0
Superior Yarn			15	0	0

Coloured stripes to order. Samples sent on application.

IRON—GALVANIZED.
Continuous Iron. For roofing, etc.
In rolls of 100 ft. x 2 ft. 28 G. (per ft., 7 as.) per roll ...
Corrugated Iron sheets 24 G. 2 ft. wide (English)

Lengths 5, 6, 7, 8, 9, 10 ft. / Approx. weight 14, 16, 19, 22, 24, 27 lbs.	per cwt.	...	10	0	0
Iron Ridging, 6 ft. x 6 inch lap. ...	per length	...	1	8	0
Bolts and Nuts, ¼″ x ¾″	per gross	...	1	14	0
Rivets (*abt. 64 to the lb.*)	per lb.	...	0	4	6
Washers, Iron (*abt. 70 to the lb.*)	„	...	0	4	6
Do. Lead (*abt. 50 to the lb.*)	„	...	0	6	0
Screws 2½ in. (*abt. 28 to the lb.*)	„	...	0	7	0
Lead headed nails 2½ in. (*abt. 20 to the lb.*)	„	...	0	6	0

NAILS—

Cut Rose Nails 1 in. (*abt. 500 to the lb.*) ...	per lb.	...	0	3	0
Do. 2½ in. („ 90 „) ...	„	...	0	2	3

Wire Nails, French.

	1″	1½″	2″	2½″	3″	4″
℔ 1 cwt. keg Rs.	13/12	11/8	11/	10/8	10/	9/8
℔ pound annas	2¾	2½	2¼	2¼	2	1¾
Nails ℔ lb. (*abt.*)	400	200	160	100	80	35

Triangular Barbed Wire Nails.

	1″	1½″	2″	2½″	3″	4″
℔ 1 cwt. keg Rs.	14/	12/	11/	10/8	10/	9/8
℔ pound annas	2¾	2½	2¼	2¼	2	1¾
Nails ℔ lb. (*abt.*)	500	290	160	110	75	40

ASPHALTE	per ton	...	69	0	0
PORTLAND CEMENT—John Bazely White and Bros. "Whites" Best ℔ barrel of abt. 375 lbs. net		...	11	12	0
Sole Agents for S. Canara, Coorg, Malabar, Coimbatore, Travancore.					
COAL TAR, Best ℔ barrel of abt. 4 cwts. gross		...	20	0	0
WINDOW GLASS—per case of 100 sq. ft. (all sound)		...	15	0	0

12×10, 14×12, 16×14, 18×14, 20×16,
22×18, 24×20, 28×24, 36×24 and 36×30.

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rate of Soda. Sulphate of Ammonia. Sulphate of Potash. Muriate of Potash. Superphosphates. Phosphate Powder. Kainits Salts.

Mixtures can be made in any proportion without extra charge. **Packing** can be done to suit transport by bullocks, etc.

Prices will be furnished on application for delivery either at our Karaparumba Works, Calicut, the Calicut Railway Station, Palghat, Mettapollium, em, or at our godowns in Cochin, Tellicherry, Mangalore and other places.

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[w 15-11-98.] *Lombard St.*

required to meet such increase may be safely estimated at 4 million rupees annually.

We fail to see that any successful attempt has yet been made to ascertain the amount of additional capital required to meet the increased demands for commercial industries in India and the increase of the population.

Anyone who takes a broad view of Indian trade as it is at present must admit that it is restricted by the insufficient supply of silver; everything points in this direction. The high rate of discount demanded by banks, brought on no doubt in a great measure by the enhanced value of the rupee, is a serious drawback to commercial progress. We in Assam, who in past years had no difficulty whatever in securing our monthly cash requirements from the Marwaries, at a discount of As.8 per cent., cannot now secure the amount required at even As.12 and Re.1 per cent., and we have to import rupees from Calcutta at great risk and heavy cost.

The number of spurious rupees in circulation in Assam will require the serious attention of Government, and we cannot help thinking that the recent discovery at Lahore of illicit coinage is only one instance of the enormous extent this profitable conversion of bullion into rupees is taken advantage of owing to the fictitious value of our coinage.

We would also point out, with exchange at 1*s.* 4*d.*, the great disadvantages we should have to deal with in competing with China and other countries where silver is taken at its intrinsic value.

Looking at trade generally, I may mention that in the report of the foreign trade of Calcutta for 1897 the total trade returns with the United Kingdom show a falling off of 8% imports and exports, being Rs.41,17,45,761 in 1897-98, against 45,02,57,267 for the previous year.

There being such a number of conflicting interests at stake, we are cautious in making any suggestion as to a method to be adopted to bring about a successful issue to the much-vexed question of Indian currency. We may justly claim that our share in promoting one of the greatest industries in India has been a prominent one, and we would protest in the strongest terms against any artificial means being countenanced by the Government of India to further bolster up exchange, as such a course merely results in the extinction of the margin of profit to the Indian producer.

We, the Assam Branch of the Indian Tea Association, cordially support the resolutions come to by the General Committee of the Indian Tea Association, viz.—

1. That a gold standard is not needed in India, even if it be practicable to establish it.

2. That the cost of establishing it (with or without a gold currency) is prohibitive, and that an undue proportion of such cost will fall upon tea-growers.

3. That, in the opinion of this Branch, the Indian Currency Commission should be directed to enquire into the question of how to reopen the mints to the free coinage of silver with the least inconvenience to the trade of this country.

COFFEE AND RUBBER IN MEXICO.

LAST mail brought us from America a very handsome volume on the above subject, accompanied by the following note from the author, says the *Ceylon Observer*, Mr. M. Romero:—"Washington, June 11.—I have the pleasure of sending to you by this mail, at the request of Mr. Hawthorne Hill, editor of the *India Rubber World*, of New York, a copy of the book I have just pulished in New York entitled *Coffee and India Rubber in Mexico*, which contains two papers that I wrote several years ago on the culture in Mexico of both staples, which may be of some interest to you. In my paper on 'Coffee Culture' I make frequent reference to its culture in Ceylon." The full title of the work is "Coffee and India Rubber Culture in Mexico preceded by geographical and statistical notes on Mexico, by Metras Remero—G. P. Putnam's Sons, New York and London, 1898." We cannot more tersely or exactly explain how Mr. Romero came to write this book, or how he gained the necessary experience, than by quoting the first portion of his introduction as follows:—

"When, after serving five years, from 1868 to 1871 as Secretary of the Treasury in Mexico under President Juarez's administration, I was obliged to resign, my health being so greatly broken down as to make it impossible for me to continue discharging the duties of that responsible, and at the time, very difficult office, feeling that if I remained in the City of Mexico, I could not regain my health as I would be subject to continual mental excitement, I made up my mind to live in the country and occupy my time in agricultural pursuits. Before deciding what branch of agriculture I should follow, I made a tour of inspection to the most favoured regions of Mexico and found that india-rubber and coffee raising seemed to be the most promising and profitable undertakings. The place which I thought best adapted to both of these products was the district of Soconusco, one of the counties of the State of Chiapas, in south-eastern Mexico, bordering on Guatemala, and I concluded to settle there and apply myself to coffee and india-rubber culture.

"In the meanwhile, coffee raising had attained considerable development in Guatemala, the Guatemalan coffee being very highly esteemed in foreign markets, and I determined to make a tour of inspection in Guatemala and examine the principal coffee plantations, in order to learn what was the best way to make a plantation and keep it productive. I, of course, tried, during this time, to collect all the information I possibly could about these two branches of agricultural industry.

"Finally, I undertook to make a coffee plantation in the high lands of Soconusco—located from four to five thousand feet above the level of the sea—as, in my opinion, a temperate zone is the proper one for that tree; and another for india-rubber in the lower lands of the district, which are warm, damp and marshy. I acquired some experience by these experiments and I made a study of the subject, not only in coffee plantations in Mexico and Guatemala, but in other countries where I understood coffee raising was also very prosperous like the Island of Ceylon, in the East Indies, and Brazil, which is now, and has been for many years, the largest producer of coffee in the world."

Mr. Romero eventually visited every coffee district of Mexico, so that he ought to write with a full knowledge of his subject. The first edition of his book—a small manual—came out 25 years ago, and it ran afterwards through several editions. When the price of coffee began to rise rapidly in 1890, great attention began to be given to Mexico with its grand advantage of proximity to the United States, the greatest coffee-consuming country in the world. Mr. Romero mentions that the maximum price obtained was 35 cents in silver; but that the price fell rapidly in 1897 until 12 cents was reached, and yet even that proved remunerative. Still we think the Ceylon planters who recently visited Mexico did quite right to hold off purchasing coffee property there until they saw what the course of the market was likely to be. The total production of coffee for Mexico on 1896 is given as follows:—

	LB.
Cordoba produces	10,000,000
Huatusco and Coatepec	10,000,000
Oaxaca	6,000,000
Tabasco	5,000,000
Chiapas	3,000,000
Other Districts	26,000,000
Total ...	60,000,000

Or nearly 536,000 cwt. The only chance of maintaining the remunerativeness of the industry, we should say, must lie in introducing the Ceylon system of careful pickings of ripe cherries only, pulping, drying, separating, &c., in fact that careful "preparation" which gave "plantation Ceylon" so high a reputation.

But the strange fact is that the recent Ceylon visitors to Mexico did not pay a little more attention to "rubber," the coming product

PLANTING BOOKS.

Map of Ceylon Tea Estates Rs.9; colored Rs.10; Mounted in case Rs.14. Map of Ceylon Plantations, Plain Rs.8. Inga Va, Rs.2-8. Areca Palm, As.12. Cocoanut Planter's Manual, Rs.4-10. Ceylon Manual of Chemical Analyses, Rs.3-10. Tobacco Cultivation, Rs.3-10. India Rubber (now in the Press). Coffee Planter's Manual (now in the Press). All about Spices, Rs.3-10. Coffee Tree and its Enemies, Rs.1-8. All about Grub, Rs.1-5. Brazil as a Coffee Country, Rs.1-8. Cardamoms, Re.1. Ceylon Coffee Soils and Manures, Rs.1-9. All about Aloe and Ramie Fibre, Re.1. Estate Buildings, Rs.4-4. Coffee and Chicory, Rs.1-13. Coffee Cultivation in Ceylon, As.5. Tea Cultivation and Manufacture, As.5. Tea Cultivation in Ceylon, As.6. Tea at high elevations in Ceylon, As.3. Manuring of Tea Estates, As.8. To Economise Labour Supply, As.12. Planting, Pruning and Preparation of Tea, As.12. Salt for Agriculture, As.8. Cocoa, Cocaine and its Salt, Rs.2. On the Importance of Lining, A

Apply "OBSERVER OFFICE,"
Colombo.

and one so much in demand at handsome prices. Here is what Mr. Romero has to say with a quotation from a Report by the British Minister:—

India Rubber.—The lowlands of Mexico, especially those adjoining the Pacific Ocean, which have a very warm and moist climate, are very well adapted for the india-rubber tree, which attains a large size and yields a considerable amount of india-rubber. We used to have whole forests of them, which fact shows that they were in their proper conditions of soil and climate, as they could outgrow the rank vegetation of the tropics, and prevent the growth of most of the other large trees in the forests; but india-rubber gatherers have destroyed most of them, and I imagine that there is a comparatively small number left.

I have always thought that the production of india-rubber would before long cease to be sufficient to supply the demand, and that, therefore, the value of that article would increase with the lapse of time. Now it is to be expected that the enormous expansion during the last few years of the cycle-tire, electrical motor-car, cab, and kindred industries will lead to the bestowal of increased attention on the world's rubber supply, which is so intimately associated with the existence of these industries.

Thinking that a plantation of india-rubber trees would be very remunerative, I devoted considerable attention to that subject, and in 1872 started one of 100,000 trees in a place admirably located for the purpose, bordering on the Pacific Ocean and between two large rivers, in the same district of Soconusco. In an article published in 1872, under the title "India-Rubber Culture in Mexico," I compiled all the information on the subject that I could obtain, supplementing it with the experience that I had acquired. Unfortunately, for reasons of a political nature, I had to abandon that plantation, and when the trees that I had planted grew large enough to yield rubber, they were tapped by the natives and entirely destroyed, but my work gave me an experience which I considered of great value.

The india-rubber trees that grow in Mexico are not the *Hævea guianensis* that grows in Brazil, but the *Castilloa elastica*, and if we have any of the *Hævea guianensis* I have not seen them.

Enough has been written lately on rubber cultivation to show that the profits, in Mexico at least, would be very great; indeed, 300 per cent. on the capital invested is a possible return, after five years, from cultivating *Castilloa elastica* in that Republic. This is a return which provides plenty of margin for contingencies. Rubber-growing is no longer in the experimental stage, as witness the plantation of La Esmeralda, in Oaxaca, to which further reference is made below. Cultivated india-rubber plantations are few, for the reason that, in some degree like the coffee plant, the india-rubber tree requires a long period of continuous cultivation before making any return to the cultivator. Mexico affords excellent opportunities for the development of this admittedly profitable industry. On this point the authority of Sir Henry Nevil Dering, the British Minister to Mexico, who, in a recent report to the Foreign Office on the cultivation of india-rubber, says:—"The regions most favourable for the growth of this important, yet rarely cultivated, india-rubber tree are the plains of Pochutla, Oaxaca, and also along the banks of the Copalita River, where the tree is found in astonishing numbers. Few are the plantations of india-rubber trees existing in the Republic of Mexico. The principal one is La Esmeralda, in Juquila, Oaxaca, which has over 200,000 trees eight years old." According to the same report the total expense for five years cultivation of a "rubber plantation of 100,000 trees will not exceed $25,000 in silver, and the yield of 100,000 trees at the first year's harvest will bring the planter $120,000, besides the product obtained from the corn, vanilla beans, cacao, and bananas raised from side planting. The net profit on the investment, after deducting the entire cost of the land and all expenses up to the first year of harvests, will be $95,000, and each of the succeeding harvests, for twenty-five or thirty years, will bring a steady income of over $100,000." This is 400 per cent. per annum net profit on the investment. These calculations are based upon the production of a five-year old tree, but the report adds that "this product will be gradually increased every year for the next four or five years."

Leaving aside the wonderful estimate of profits—and neither Sir Henry Dering nor Mr. Romero gives much practical information as to labour to back it up,—we would observe that the favourite rubber is that so well spoken of by Mr. Hart in Trinidad (as quoted by us the other day) and which for several years received a good deal of attention from Dr. Trimen in his annual reports, although the growth and yield of milk did not answer his expectations. the situation was not favourable to either. We should like if any trees of this kind (Panama rubber) have been trie Kalutara or Ratnapura districts and with what results. I must close for to-day.

DISTRICT ASSOCIATIONS.

SHEVAROY.

PROCEEDINGS of the monthly Committee Meeting of the S Planters' Association held in the Victoria Rooms, Yerc Monday, the 4th July, 1898, at 11 A.M.

PRESENT.—Mr. C. Rahm, Mr. Thurston Short, Rev. M. A Mr. C. G. Lechler (*Chairman*), Mr. R. Gompertz (*H Secretary*).

Read letter from Mr. Thurston Short *re* Chembana Resolved that it be brought before the General Meetin presently held.

Read part of the correspondence *re* lady-birds, when the H Secretary stated that as Mr. Newport was now at Yercaud, invited him to attend the General Meeting at 1 P.M. Resolv the matter be discussed at the General Meeting.

Read and *Recorded* the following letters:—

1. Letter from Postmaster-General, stating that Mail tra Madras stops at Kadiampatti and that the one to Madras stop there.

2. Letter from the Secretary, U.P.A.S.I., requesting to be i as to what progress has been made with reference to the su cashing *currency notes*, etc.

3. Circular from the Secretary, U.P.A.S.I., suggesti the Committee Meeting be at 10-30 A.M. and General Me 2 P.M. on Monday, 1st August, 1898.

4. Circular from the Secretary informing that the Meeting will open at Bangalore on Monday, 8th August, 1 the Committee Meeting at 10-30 A.M. on that day.

(Signed) C. G. LECHLER, *Chairman.*
(„) ROBERT GOMPERTZ, *Hony. Secretary,*

PROCEEDINGS of the Quarterly General Meeting of the S Planters' Association held in the Victoria Rooms, Yerc Monday, the 4th July, 1898, at 1 P.M.

PRESENT.—Mr. W. J. Lechler, Mr. Thurston Short, Mr. S bell, Mr. C. Dickins, Rev. M. Andersen, Mr. C. G. Lechler (*Ch* Mr. J. C. Large, Mr. F. Short, Mr. C. Rahm, Mr. E. Dick H. Newport, Mr. R. Gompertz (*Honorary Secretary*).

1. The notice calling the Meeting was taken as read.

2. It having been brought to the notice of the Meeting Accountant-General refused to issue supply bills except fo or multiples of Rs.500, it was resolved that the Honorary S be requested to address him on the subject and to enquire limitation had been fixed since it was not mentioned in th spondence.

3. *Read* letter from Mr. Thurston Short requesting the tion to ask the Collector for a grant of Rs.200 to put the N Chembanat Road in order and for a yearly grant for its main Resolved that Mr. Thurston Short be requested to write to H Secretary stating how much the Nagalore Planters are w subscribe to both items, and that the Honorary Secretary address the Collector on the subject.

4. *Resolved* that Mr. Lechler be elected as the Delegate t sent the Association, with Honorary Secretary, at the Mee the U.P.A.S.I. on the 8th proximo.

5. Mr. C. Dickins was elected Member of Committ Mr. Evans, who has proceeded to England.

(Signed) C. G. LECHLER, *Chairman.*
(„) ROBERT GOMPERTZ, *Hon. Secretary*

HELPLESS ON THE SHOALS.

A GREAT steamship, feeling her way in a fog, ran upon a l bank and stuck fast, about twenty miles from her port. She board a valuable cargo and nearly three hundred passenger of whom were almost within sight of their homes. The tug and tried vainly to pull her into deep water. The officers

e navigators as there had ever been. But she was helpless, and as dead low water. Only one thing could be done—to wait. A hours later the Captain said to his passengers, "*the tide is rising*; shall be off presently." Sixty minutes more and the ship floated. was now noon. At two o'clock sharp the impatient voyagers oped ashore. They might have been delayed longer save for the fact which the captain had announced in four words.

Perhaps this simple and not uncommon incident may contain a on for you and me. Suppose we draw a little comparison and The man who learns nothing from things at his elbow will waste his time going to college.

Mr. William Jordan is grocer and postmaster at Bright Waltham, ntage, Berks, where everybody knows him and believes in him. December 7th, 1893, he wrote a letter to a friend, and by consent both parties we print a part of it.

"In the autumn of 1890," he says, "I had an attack of influenza. e effects of it lingered with me. I had no heart for anything. I tired, languid, and weary. My appetite fell away, and what I eat gave me a sense of tightness and fulness at the chest; my vels were very costive, and I suffered much from sick headache. arp pains often caught me between the shoulders, and my breath- was very bad. I kept on with my work, but, on account of my kness, the task was doubly hard. For about four months I was e this, when one day the thought came to me to try a medicine t so many of my customers bought of me and spoke so highly of. arried out this idea, and after I had taken one bottle of it I iced this first of all—*My appetite was better.* I could eat; I ished my food; I got stronger. I took another bottle, and was well as ever. That is three years ago, and I haven't had a touch llness since. (Signed) William Jordan."

One more letter—short and right straight to the point. Mr. lliam R. Saunders writes it. He is a newsagent, and lives at Old wn, Wotton-under-Edge, Gloucestershire. His letter is dated vember 7th, 1893, just one month to a day earlier than Mr. rdan's. That merely happens so, the two gentlemen having no owledge of each other.

"In the spring of 1891," says Mr. Saunders, "I found myself out sorts all unexpectedly. I couldn't fancy what had come over me. was low, weak, and tired. I could eat hardly anything, and what id eat gave me so much pain and distress that I came to dread ting down to a meal. There were pains in my chest, sides, and ck, between the shoulder blades. Then I got so weak that my rk was a sort of drag on my hands; and even when walking I was short of breath I had to stop and rest here and there. I took dicines the doctor gave me, and pills, &c., that my friends recom- nded; but it was no use, they didn't help me. And all the time, nth after month, I was getting weaker and weaker. At last I t a bottle of medicine from Bristol that was right. That one ttle had this effect at first. *My appetite came back*, and when I t through with the second bottle I was completely cured. igned) William Saunders."

Now for the lesson. You see what it is, of course, but let's have in words. When the ship was fast on the shoal, only one thing lped her—*the rising tide.*

When these two men were fast on the shoal of illness only one ing helped them—*the rising appetite.* With eating and digestion me strength and health, for the trouble was that universal des- oyer and deceiver, indigestion and dyspepsia.

The *tide* rose to the pull of the moon. The languid *appetite* is used by medicine finally resorted to by both our correspondents—other Seigel's Curative Syrup.

MARKET REPORT.

COFFEE.

Messrs. R. J. Rouse & Co's Weekly Coffee Report (July 1, 1898) says:—

The supplies in Public sale have been on a much smaller scale this week d were mostly disposed of at about previous rates.

Only 280 bags East India were catalogued and these meeting no com- tition had to be bought in.

A slightly better tone prevailed for Central American kinds, and the oderate quantities offered realised rather better prices.

Futures have been a dull market with very little business passing and otations are practically unchanged on the week.

Messrs. Wm. Jas. and Hy. Thompson's Report of the Colonial Markets for the Week ending June 29th, 1898, says:—Bank rate 3°/₀. Bombay Exchange closes at 1s. $3\frac{2}{32}$d. Brazil Exchange $7\frac{9}{16}$d. Rupee paper $3\frac{1}{2}$ °/₀ $62\frac{1}{2}$. Silver $27\frac{5}{16}$d. per oz.

The spot market has been steady at the recently established decline, but there is very little business doing, and only part of the very much smaller supplies have been sold. The few lots of colory continue to meet with good competition.

Brazil markets are very dull.

Daily receipts averaged 3,700 bags in Rio, and 7,000 bags in Santos.

Futures are dull and lifeless, closing values showing a decline of about 3d per cwt., viz.:—Good average Santos in Havre, September delivery, fcs. 36.25, in Hamburg pf. 30, and No. 7 low ordinary Rio in New York $5·65.

To-day's London official quotations are:—

	July	Sept.	Dec., '98.	Mar.	May, '99.
SANTOS ...	28/6	29/3	29/9	30/3	30/6

We quote:—

Ceylon, mid. to good mid.	96/@107/	Costa Rica, mid. to fine...	69/@105/
Do. small to low mid.	80/ „ 93/	Do. ord. to low middling.	41/ „ 65/
East India, mid. to good mid...	75/ „ 92/	Jamaica, good to fine ord.	32/ „ 50/
Do. small to low mid.	58/ „ 73/	Do. greenish to fine colory...	65/ „ 125/
Guatemala, mid. to fine...	68/ „ 98/	African ...	26/ „ 29/
Do. good ord. to low mid...	52/ „ 67/	Columbian, ordinary ...	34/ „ 42/
Salvador, good ord. foxy greenish...	37/ „ 41/	Do. good ord. to low mid...	39/ „ 59/
		Do. mid. to fine .	62/ „ 95/

Receipts in Brazil to 29th June compare as follows with previous years:—

	1897-98. Bags.	1896-97. Bags.	1895-96. Bags.
RIO	4,288,000	3,561,000	2,398,000
SANTOS	6,151,000	5,078,000	3,091,000
	10,439,000	8,639,000	5,489,000

In Sale—

672 bags East India.
- 443 bags Neilgherry, partly sold ... 39/6 @ 84/
- 102 bags Shevaroy „ ... 40/6 „ —
- 22 bags Travancore „ ... 45/6 „ —
- 5 bags Coorg bought in.
- 100 bags Native kind damaged garblings ... 16/6 „ —

8,499 bags Costa Rica, part London cleaned, good part sold... 37/ „ 98/6
3,105 bags Guatemala „ „ partly sold ... 34/ „ 81/
2,303 bags Salvador „ „ „ ... 38/ „ 48/
1,490 bags Nicaragua „ „ „ ... 34/6 „ 96/6
172 bags Central American bought in.
79 bags Honduras ... ... 39/ „ —
2,181 bags Columbian, part London cleaned, partly sold ... 43/6 „ 71/
183 bags Venezuelan, partly sold ... ... 35/ „ 56/
709 bags Mexican, part London cleaned, partly sold ... 37/ „ 73/6
13 bags Ceylon Liberian bought in.
252 packages Mocha bought in.
13 casks 168 brls. 265 bags Jamaica, part London cleaned, good part sold ... ... 32/ „ 63/6

Landed last week ...1,269 *tons. Deliveries* ... 676 *tons. Stock*,..19,124 *tons.*
Do. last year ... 289 „ „ ... 640 „ „ ...14,079 „

TEA.

Messrs. Gow, Wilson and Stanton's Indian, Ceylon, and Java Tea Report, dated July 1st, 1898, says:—

QUANTITY BROUGHT TO AUCTION IN LONDON

FROM 1ST JUNE TO DATE.

	Indian.	Ceylon.	Java.
1898-1899...	41,235 packages.	104,676 packages.	3,353 packages.
1897-1898...	29,273 „	116,391 „	3,764 „

10,567 *pkgs.* INDIAN
23,830 „ CEYLON
1,441 „ JAVA
} Total 35,838 packages were offered in public auction this week.

Duty payments and exports for the complete season are given below, as shown by the Custom House returns, together with the stock of all Tea in the United Kingdom on the 31st May.

Movements of Tea in United Kingdom from 1st June to end of May, as shown by Custom House Returns.

	Imports.			Home Consumption.			Exports.*		
	1897-8.	1896-7.	1895-6.	1897-8.	1896-7.	1895-6.	1897-8.	1896-7.	
British E. Indies ...	137,283,167	135,146,943	121,615,070	127,575,718	123,735,159	121,099,847	5,957,075	5,245,489	
Ceylon	95,980,004	98,293,864	86,596,784	86,874,299	83,532,450	75,922,038	10,753,733	9,428,653	
China	30,717,706	32,358,972	38,448,427	15,706,917	19,515,806	21,788,914	18,570,640	19,946,202	1
Other Countries ...	7,365,651	6,675,349	9,159,789	4,710,543	4,423,735	4,290,446	1,136,881	915,941	
Total lbs. ...	271,346,528	272,475,128	255,820,070	234,867,477	231,207,150	223,101,245	36,418,329	35,536,285	3

* Analysis of above export of Tea from U. K. (not including transhipments).

	Indian.		Ceylon.		China.		Other Coun
	1897-8.	1896-7.	1897-8.	1896-7.	1897-8.	1896-7.	1897-8.
Countries in Europe	3,202,743	2,193,186	6,363,736	5,198,605	12,022,067	10,468,376	675,343
United States	682,692	978,256	1,508,569	1,549,906	1,461,622	3,006,751	141,899
British N. America	999,831	1,271,643	1,506,864	1,659,189	1,071,364	2,666,930	91,020
Other Countries	1,071,809	801,804	1,374,564	1,020,953	4,015,587	3,804,145	228,619
Total lbs. ...	5,957,075	5,245,489	10,753,733	9,428,653	18,570,640	19,946,202	1,136,881

Stock of all Tea in United Kingdom at the end of May:—

1898, 66,915,000 lbs. 1897, 70,213,000 lbs. 1896, 69,601,000 lbs.

Indian. The want of animation noticed in last week's auction was more pronounced; a slight decline in price of New Season's Teas having become general except in those kinds with specially useful liquor.

Week's avg. of New Season's Tea sold on Garden Account, 1898, 3,312 pkgs., av. 7·89d. 1897, 4,436 pkgs., av. 8¼d.

	1898.		1897.		1st June to date 1898.		1st June to date 1897.	
	Pkgs.	Price.	Pkgs.	Price.	Pkgs.	Price.	Pkgs.	Price.
Assam ..	636	7·78	1,056	8¾	2,699	8·83	2,542	8·94
Cachar & Sylhet ...	126	6	814	6¾	312	5·86	1,062	6·69
Chittagong ...	—	—	—	—	—	—	—	—
Chota Nagpore ...	—	—	—	—	—	—	—	—
Darjeeling ...	2,008	8·21	1,566	9¾	4,117	8·59	2,577	9·85
Dooars ...	468	7·47	390	8	1,144	7·31	761	8·24
Kangra, &c. ...	—	—	25	5½	100	7	25	5·50
Neilgherry ...	—	—	60	6½	300	7·16	133	6·37
Terai ...	—	—	—	—	391	6	106	8·75
Travancore ...	71	5·75	525	7¾	4,244	6·30	1,908	6·10

New Season's Tea sold on Garden Account 1st June to date 1898, 14,334 pkgs., av. 7·59d. 1897, 9,114 pkgs., av. 8·26d.

Comparative prices of Indian Tea in London.

		1898.	1897.	1896.	1895.
Dust.	(Fair ordinary, dark liquor) ...	3½d	3½d	4½d	4½d
Fannings.	(Red to brown, strong rough liquor) ...	3¾d	4d	5d	4¾d
Broken Tea.	(Brownish to blackish, strong liquor) ...	6d	6½d	7¼d	6½d
Pek. Soug.	(Blackish greyish, useful liquor).	6¼d	6¾d		
Pekoe.	(Greyish to blackish, some tip, useful liquor) ...	7¼d	8½d		
Pek. Soug.	(Blackish greyish, inferior liquor).	5¼d	5d		
Pekoe.	(Blackish greyish, some tip, inferior liquor) ...	5½d	6d		

Ceylon. No marked change has taken place from the featur last week, bidding for all descriptions continuing very strong general competition. Average price 7·46d. against 7d. last year

Ceylon Tea sold on Garden Account 1st Jan. to date 1898 pkgs., av. 7·63d. 1897, 546,090 pkgs., av. 7·74d.

Comparative prices of Ceylon Tea in Londo

		1898.	1897.	1
Pekoe Soug.	(Ordinary leaf; fair liquor) ...	6d	6d	
Pekoe	(Ordinary leaf, little twist; fair liquor) ...	6¾d	7d	
Pekoe Soug.	(Rather bold leaf; indifferent liquor) ...	5¼d	5d	
Pekoe	(Somewhat bold leaf; indifferent liquor) ...	5¾d	5½d	

Java. Javas were mostly sold in the auction with good valuations generally being readily obtainable. "Perbawattee an average of 10½d. A Broken Orange Pekoe from "Djattie realized 1/2¼ per lb.

Bank Rate 2½ per cent. Exchange on London three months Calcutta 1/3 27/32. Colombo 1/3 27/32.

PUBLIC SALE OF SOUTH INDIAN TEA.

(Average for all India) *July 1st.*

Garden.	Total.	Average.	Broken Org. Pek. or Flowery Pekoe.		Pekoe and Unassorted.		Broken Pekoe.		Pekoe Souchong.		Broken and Souchong.		Fanning and V
	Quantity	Price.	Quantity	Price.	Quantity	Price.	Quantity	Price.	Quantity	Price.	Quantity	Price.	Quantity
Travancore ...													
Isfield T Co Isfield.	71	5¾	...	...	43	6	...	...	28	5½	...	...	...

PLANTING OPINION.

A WEEKLY JOURNAL

WRITTEN BY PLANTERS FOR PLANTERS.

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SUBSCRIPTION.—Advance Rates: Yearly, Fifteen Rupees; Half-yearly, Eight Rupees; Quarterly, Five Rupees, and Monthly, Two Rupees, including postage. Single Copies, Eight Annas.

ADVERTISEMENTS.—From the 1st October, 1897, the charge for line advertisements will be: 4 as. per line for the first, 3 as. for the second, and 2 as. for the third and succeeding insertions. Five-line advertisements from Subscribers will be inserted for three issues for one rupee; non-Subscribers will be charged two rupees.

DOMESTIC OCCURRENCE.—The fee for inserting a domestic occurrence will be *One Rupee* for each insertion, payable in advance.

N.B.—Remittances should be sent to the Manager, "Planting Opinion," 11/12, Second Line Beach, Madras.

IMPORTANT NOTICE.

The Business Offices of this paper having now been removed to Madras, all remittances should be made payable to the Manager of *Planting Opinion*, 11 and 12, Second Line Beach, Madras, who will also attend to all advertisements, &c.

Letters to the Editor should be addressed to Coonoor, as usual.

SEASON REPORTS.

TO OUR SEASON REPORTERS.

Please post your next reports to reach Madras on Friday, the 5th August, 1898.

Season Reports should be sent to the Printers, Messrs. Addison & Co., direct, and not to *Planting Opinion* Office.

Coorg.

Polli Betta, *26th July.—Weather.*—Complete change since 20th instant. Much more monsoonish. Completely overcast and rainy. Over an inch yesterday, and very wet to-day. *Crops.*—More sanguine now than ever before that estimates will be slightly exceeded. *Plant-diseases.*—Borer has been "mortial" bad, but otherwise coffee is looking very fine. *Labour.*—Estates are fairly off for labour, and all reasonable works are well in hand. Work on paddy-fields belated owing to deficiency of rain. *Health.*—Good.

Nellampatty (British).

27th July.—Weather.—As I said in my last, a change of weather in no mistake has set in, and we have had pucka monsoon at last. The wind has been something terrific, and in my experience have never seen it so bad. Rain for week 16 in., to date 63·36. *Plant-diseases.*—Leaf-disease in nursery very bad. No signs of it in clearings here yet. Throughout the district it is getting worse, I hear, and shortly it will be in full attack. *General Health.*—Still very bad. It is to be hoped this change of weather will improve things. *Interesting Items.*—One of our number has fallen a victim to this truly "delightful" climate. Mr. E. Jones died in Madras on 16th instant of pneumonia. Much sympathy is felt for his wife and family.

THE LADY-BIRD QUESTION.

The interesting report lately submitted by Mr. Howard Newport shows that his efforts to import lady-birds, as the natural exterminator of certain scale pests, were successful to a certain point. At that point they broke down most lamentably, and the next result was Failure—written with a

very large F. Still, the matter can hardly rest here, so it may be interesting to consider *why* the first scheme collapsed, and what precautions should be added in the next venture to the many taken by Mr. NEWPORT during the first attempt. In the first place, referring to the doubts expressed by the Kew Gardens authorities, we may remark that we believe Mr. NEWPORT'S plans were so laid that there was very little fear of his importing the wrong varieties of lady-birds. It is now generally admitted that these insects do prey on the scale pests that attack coffee, tea and fruit trees. There may be certain varieties that take a special delight in destroying the special pests that attack tea, others that prefer coffee pests, and so on. That the homœopathic system of fighting insects with insects is sound, has, however, been established beyond question. We republish on another page an interesting article from the *Sydney Mail* on this subject, and from it and from reports that have been previously submitted from other quarters, our readers may safely draw the conclusion that artificial methods, such as the use of sprays, are inferior to the natural method of destroying scale pests. The aim of the planter should be, therefore, to find the natural enemy or enemies of the pest that causes his crops to wither, and then to have it or them imported and placed in position for the attack. This raises the question as to the *practicability* of importing lady-birds, what have been proved to be destructive of red spider. Mr. NEWPORT considered this practicable, but at the first glance his failure may be taken to demonstrate his error. Looking at his report more closely, however, we satisfy ourselves that Mr. NEWPORT did import live lady-birds ; he conveyed them —perhaps not the whole of his collection, but still a good portion—to his estate *alive*. The state in which they were when the cases were opened proves that they were *alive at that time*. Where the whole scheme broke down most miserably was that no one was present who had had experience in thawing out torpid insects. No special preparations would appear to have been made, and when Father SOL declared his inability to carry the work out satisfactorily, the doom of the lady-birds was sealed. No doubt the difficulties Mr. NEWPORT met with in respect to the keeping of his charges at an even temperature may have had a good deal to do with his inability to thaw them out ; but insects that arrived in the condition he describes were not dead, and if there was life in them, there was always a chance of resuscitating in them.

If this conclusion is correct, it follows that another attempt to import lady-birds should certainly be made. But, first, information ought to be acquired as to the very best means of rendering them torpid by reduction of temperature, and next as to the proper method of restoring warmth and vigour to them on their arrival in this country. Mr. NEWPORT found a man in Brisbane who was competent to give him good advice on the former point. There were probably others who had had experience in respect to the second. In England, at any rate, there must be many scientific men who have studied the matter, and some who have had practical experience. An attempt should be made without delay to ascertain the names of such men, and to elicit from them any information that they can give that would guide importers of lady-birds into India when the time comes for thawing the next batch of insects out. It is evident from Mr. NEWPORT'S report that arrangements could easily be made at Brisbane for the despatch of another lot. All ship captains are not so disobligin Mr. NEWPORT'S experience might lead one to suppose. T should be no difficulty in making arrangements for shipment to receive careful attention on the voyage. T shipment at Colombo could be effected without any great risk, and at a small expense. The real difficulty commence on the arrival of the insects at their destina Unless by that time the right process is known and right appliances ready on the spot, there will probabl a repetition of the first collapse, and again we shall ha batch of dead lady-birds dumped down on a South In estate.

Might not the U.P.A.S.I. take action, in anticipatio a fresh attempt, to import these insects ? We refer a to the extract, "Fighting Pests with Parasites," give another page. It will be seen from this that "the cot cushion scale" gave immense trouble. Now mark what lows :—"All artificial methods of combating the pest w unavailing. At last it was suggested that, inasmuc the scale had been brought *from Australia*, where it w native and not a pest, there must be some natural para which kept it in check. Upon this suggestion action taken, and the now famous *Vedalia cardinalis* was in duced." Surely the words italicised justify the deduc that the *Vedalia cardinalis* was introduced *from Austra* And if so, why should not *coccinellidæ* be introduced India from Australia? It would obviously be of great inte to South Indian planters at the present juncture to k exactly how the above parasites were successfully impor The season at which they were collected, the metho packing and transport, and the whole procedure up to time of arrival on the field of action in California sh be ascertained. There should be no difficulty about this. is a mere question of time, for the State agricultural aut ities in California will have the whole thing at their fin ends and their willingness to impart information of kind is well known. In California, as in Madras, the S aided the enterprise. The two attempts would appea have been similar in character. The one failed, the o succeeded. We cannot but think that all this points in direction. It constitutes a finger-post, declaring that " California" is the road that should now be taken by those want information regarding methods of importing lady-b for the purpose of combating insect pests. But the se after knowledge need not take the road himself. He conduct his studies by correspondence—in the most appro modern fashion.

NOTES.

American Market Fund. The contributions to the Am can Tea Market Fund, India, reached over Rs.70,750 by the 6th ultimo.

To learn botany. A correspondent wishes to kn from one who has tried it, the way of teaching himself botany, that is to say, to l how to distinguish plants of the different genera species. We can only advise the querist to study plants in his compound with the help of a text-book, perhaps one of our readers may help him further in acquisition of this most technical of all sciences.

Vitality of rubber seed.

In the Annual Report of the Botanical Gardens, Singapore, for 1897, Mr. H. N. Ridley says that Para rubber seeds should be planted as soon as they are ripe, as they retain their vitality for only about a fortnight. This is important to those ordering Para rubber seeds. Oily seeds have a tendency to deteriorate early, but a fortnight is, indeed, a very short time, and may account for failures in the germinating of the seeds often reported to us.

The Journal of the R.A.S.E.

The second quarterly volume of the Royal Agricultural Society Journal for this year contains no articles of especial interest to our readers. The principal articles are by Professor Worthey Axes on the "Mare and Foal"; "The Marketing of Poultry" by Mr. Edward Brown; the first part of a series on Flower and Fruit-Farming in England by Professor J. McFadyean; and lastly, a long and technical paper on the growth of Sugar Beet and the manufacture of Sugar in the United Kingdom by Sir John Lawes and Sir Henry Gilbert.

The American War tax on tea.

The New York correspondent of the *Grocer* says: "The market advanced from 5 to 7 cents per pound. It is thought that the result will be to settle the market about 6 cents above its recent level. The growers will share part of the tax; the dealers will relinquish a part of their profits, and so will the retailers, while the consumers will scarcely realise that there is any tax on tea. I do not imagine that there will be a pound less imported and used on account of the duty. It ought to increase the demand for Ceylon and Indian tea, as these sorts yield a greater quantity of beverage than is obtained from a like quantity of China or Japan tea. The low grades are most affected by the duty. Political motives blocked every attempt to impose a duty on coffee, and yet coffee could stand a tax better than almost any other article imported, except sugar."

Ceylon Planters and the Emperor of Austria.

The Vienna correspondent of the *Times* says, *apropos* of the tea sent to the Austrian Emperor by Ceylon planters, "A British colonial present—namely, that of the Planters' Association of Ceylon, which has just reached Vienna, will certainly not be the least interesting of those made on the occasion of the Austrian Imperial Jubilee. It consists of an album of Ceylon views and twenty boxes constructed of ten different kinds of timber grown in Ceylon, containing a quantity of the finest varieties of native tea. The album, which is of English workmanship, is bound in crocodile leather with silver mountings. The Austrian arms appear in high relief on the cover. The whole forms a very creditable specimen of modern applied art. The bearer, Mr. G. Marinitch, himself an Austrian, has been received in audience by the Emperor, who graciously expressed his pleasure in accepting this present."

The re-opening of the Mints.

Writing in the *National Review*, Mr. Robert H. Elliott, of Mysore, expresses his views on the Currency question. He advocates a currency that will place India on an equal footing with the other silver-using countries whose productions compete with those of India. This end can, he thinks, only be reached by gradually re-opening the mints to the coinage of silver; and he suggests that Indian finances must be aided, and the condition of the country improved, by the grant of a British guarantee for all the existing and all the future liabilities of India, while the losses in exchange to the Government must be recouped by *import* duties and other forms of taxation. From this it will be seen that Mr. Elliott's views are widely different from those expressed in the U.P.A.S.I. Circular of 31st January last. What he advocates is neither more nor less than Protection in a very strong form: a low Exchange, which means a heavy tax on imports, and then import duties to add to this! What will the Manchester School say?

Nitrate of Potash.

With reference to the interest now taken in this valuable fertilizer, the following notes may be found useful. In its pure form, it consists of 53·41 parts of nitric acid and 46·59 of potash, which is equivalent to 13·8 of nitrogen. The commercial form, however, only contains from 12 to 13 per cent. "It is obtained, in large sheds built for that purpose, by the decomposition of animal matter mixed with a clayey or marley soil, which is then washed to extract the nitre. For a long time this salt was obtained from waste building materials. It is now made by decomposing potassi chloride by means of sodic nitrate, sodic chloride (sea-salt) and potassic chloride are obtained at the same time, but they are easily separated by crystallisation. Of all the products that contain potash, potassic nitrate is the most suitable for agricultural purposes."

"Potassic nitrate is one of the most efficacious agents in the growth of plants. It contains nitrogen and potash in a very assimilable form, and for certain plants, such as tobacco, it is the most suitable in many respects."

As its purity is frequently engendered both by careless preparation and by subsequent fraudulent adulteration with chlorides and alkaline sulphates, it is necessary that this product should be chemically analysed before purchase.

Hankow Teas.

The British Consul at Hankow does not take a cheerful view of the Chinese position, remarks the *H. & C. Mail.* He reports that in 1897 there was a very considerable falling off in the export of tea, amounting in all to 164,000 half-chests, equal to 10,168,000 lbs. from that port. The cause of this decrease in the export was mainly due to deterioration of quality in all grades except fine and finest. This deterioration is no new thing, but has now proceeded steadily for years, with the result that the demand for China teas grows steadily less, while that for Indian and Ceylon increases in the most marked manner. It is difficult, the report continues, to see how Hankow teas can ever again successfully compete with Indian and Ceylon, even under the most favourable circumstances. The Indian and Ceylon tea companies have a large capital at their command, and they are controlled and directed by business men who have a practical knowledge of tea planting. In consequence of late years there has been a concentration of management and an introduction of sundry economies in working; the trade has likewise benefited in no inconsiderable degree

from increased facilities of transport and reduced rates of freight. In the case of Indian teas the profit per lb. made on teas sold averages 2 2-10*d.* The average profit on Hankow tea is estimated at about ½*d.* per lb., and it is evident that in the event of any serious competition between Indian and Hankow teas the latter could be driven out of the market, while the former would still fetch a handsome profit. There is now no demand for Hankow teas in London, except for such chops as can be laid down at not over 5*d.* per lb., and at this price decent sound teas are expected. The shipment to London of medium and fine teas at from 8*d.* per lb. is a speculation depending entirely on the Continental demand.

London market.

Coffee.—The market has continued in the same dull condition, and importers have wisely refrained from pressing forward supplies at the same rate that they were doing during the early part of the month. The total brought to auction has consisted of less than usual at this time of year, and has been almost exclusively Guatemala and other Central American sorts. On Tuesday about 4,000 bags of Costa Rica were offered, but these were, with hardly an exception, of such common quality that the home trade paid little attention to them, and they were mostly sold for export at the recently established decline, or in some instances rather dearer. In the terminal market there has been no change. there being a general desire to wait for the new crop, The old crop, the receipts of which closed on Thursday, has produced nearly 10½ million bags, but as an indication of the enormous increase in consumption, it is pointed out that the stocks remaining in Rio and Santos are only about 100,000 bags more than last year.

LONDON COFFEE RETURNS.

—	HOME CONSUMPTION.		EXPORT.		STOCK.	
	1898	1897	1898	1897	1898	1897
For the week ended June 25, 1898.	Tons. 223	Tons. 195	Tons. 453	Tons. 445	Tons. 19,124	Tons. 14,079
For the 25 weeks ended June 25 1898.	7,578	7,306	13,270	10,422	—	—

Indian Teas.—With a poor selection on offer, and a moderate demand, the market has been irregular and in several cases easier. The new teas brought forward, with few exceptions, were not of very desirable character, consequently the demand was inactive and values mostly favoured buyers. The report of the crop so far continues disappointing, as not only is there likely to be a falling off in quantity, owing to the unfavourable weather, but the teas up to the present seem to be of very ordinary quality. This may be changed later on, but it appears almost certain that the crop will be considerably below the early estimate, as in some districts less than half the quantity has been manufactured up to date, as compared with last year, and it seems doubtful whether the deficiency will be made up. What the trade require is a good supply of medium and finer grades and less of the common kinds, and if growers would give more attention to trade requirements in this respect, it would be conducive to their interests. public sales 10,467 packages were brought forward of which were new season's, representing most of districts. Some of the Darjeelings were of fairl quality and readily sold, while the poor liquorin fetched about last week's rates. Other growth generally inferior and brought irregular and, in mos lower prices.

The Madras Agri-Horticultural Society.

The yearly report of this contains, as usual, some inte matter. Experimental cult does not seem to be in a very brisk state, only two being sent out, one to Mr. L. W. Grey, Pykara, N and the other to Mr. T. Thompson, Sanivarsante, C

As usual the most interesting correspondence furnished by that indefatigable horticulturist, Mr Ferguson, of Calicut. Writing on rubber, Mr. Fe on the 5th January, states :—

I am anxious to propagate plants of Castilloa elastica American rubber from cuttings, as my trees seldom or ever s I have never been able to save any seed from these trees w Heveas, Para rubber, seeds freely.

When these rubbers were first introduced here, I under experiment on the best plan of propagating the plants rapid cuttings, but I failed.

The late Mr. Lawson, at the request of Government, ca to look into this matter and to advise me on the subject, opinion being that we could not propagate by cuttings ex having a propagating house with bottom heat: but this Mr. stated was unnecessary: he spent several days with me h planted many hundreds of cuttings of the Castilloa in sm in much the same manner as I had previously done. I t greatest personal care of the cuttings, but all died, not one had formed a callus, and an expenditure of Rs.784 and muc able time were lost, as Government would not sanction my a small propagating house with hot-bed to start the cuttings

If you can give me any suggestion or information in this tion, I will be greatly obliged.

In the case of planting cuttings here, it appears to me th drawn up and no callus is formed. I find this with ro many other plants, but I think the use of bottom heat wou come this difficulty. If so, what would be the best form o ing bottom heat here or in Wynaad for propagating purp stove or a hot bed? And with a suitable propagating hous trained man to attend to it, could the work be carried o seasons of the year?

Mr. Ferguson has been asked to send some cutti Castilloa elastica. They will be tried in the garde and the results communicated to him.

On Durian, the Secretary of the M. A. H. Society s We sent six Durian plants to Mr. T. J. Ferguson of on the 5th December, 1889. In answer to our quer how they are getting on at the present time, he rep follows :—

I am sorry to say my Durian tree is not a success: alth has a certain amount of shade from large mango trees amon it is planted, the upper branches die back every hot weathe tree is now only eight feet high and many of the branches a I have come to the conclusion that the Durian and Mangost quite unsuitable for the West Coast. The Mangosteen gro at Courtallam and Burliar; possibly the Durian might grow the same localities, but neither are a success here.

Read letter from the Honorary Secretary, Tena Agri-Horticultural Society, Moulmein, dated 26th Ja 1898, in which he says: "In reply to yours of th instant." The Durian fruits well at Moulmein an quantities of the fruit are exported to Rangoon.

Read letter from the Superintendent, Agri-Horticultural rdens, Rangoon, dated 4th February, 1898 :—

Owing to the situation of the Society's gardens (being low), rian does not thrive, but on the high ground in the suburb of s town there are many trees bearing fruit regularly every year. rge quantities of this fruit are grown near Moulmein and Tavoy l brought into the market for sale.

From the same report we excerpt a para. on Sisal Hemp:—

Sisal Hemp.—As the Society have now large stock of the new re plant (Agave rigida var. Sisalana) from Yucatan, Mexico, I nk it desirable that these plants should be tried in different parts he Presidency, and therefore propose to place them at the disposal Government. A small stock will be reserved for trial locally.

Read letter from Mr. J. M. Gleeson, Superintendent of the Gardens, ed 17th March, 1898, thanking the Honorary Secretary and the ntlemen of the Committee for the cheque of Rs.100 presented to n for his efforts during the late Flower Shows.

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a and the Currency. The following is the full text of the letter, dated 24th June, 1898, dressed by Mr. E. Tye, Secretary of the London Branch, dian Tea Association, to Sir Henry Fowler, President of e Indian Currency Commission :—

"SIR,—This Association, representing the producers of tea India, is deeply interested in the solution of the questions w under the consideration of the Committee over which u preside, and I am directed to submit the following atement with reference to the action taken by the Governent of India in closing the mints to the free coinage of ver and raising the exchange value of the rupee to about . 4*d.*, and the effect of the same on the industry.

"(1) The Indian tea industry first began to be of importnce about 35 years ago, when the crop of tea amounted to bout 3,000,000 lbs. The crop of the past season was 51,000,000 lbs.

"(2) The great industry, which has been built up by the nterprise of our countrymen and now represents a capital over £20,000,000, has been the means of reclaiming rge tracts of waste land in the valleys of the Brahmaputra nd Surma and other districts in India, and besides giving mployment to several hundred Europeans, who, as Voluners, form a valuable addition to the defensive resources of he country, it provides for over 1,000,000 natives of India, ost of whom come from congested districts and have reatly benefited by the extension of tea cultivation.

"(3) The capital invested in tea property in India is rgely held by persons in the United Kingdom who were ncouraged to take up an industry initiated by the Governent of India, and have since been attracted by the comarative safety of an investment in a staple article of consumption, which has hitherto given them fair returns on their money.

"(4) The consumption of British-grown tea (Indian and Ceylon) in this country last year amounted to 215,000,000 lbs., or nearly 6 lbs. per head of the population, and the United Kingdom derived the large revenue of more than £3,500,000 from the heavy import duty, representing over 40 per cent. of its value, levied on the article.

"(5) The action taken by the Government of India in its endeavour to give an artificial value to the rupee as compared with the present value of its weight in silver places the growers of tea (as well as other producers) in India at a disadvantage in their competition with their rivals in other silver-using countries to the extent, if exchange be maintained at 1*s.* 4*d.*, of the equivalent of an export duty of over 30 per cent.

"(6) Tea cultivation involves a large expenditure of capital, extending over several years before the plant arrives at maturity, and if it ceased to be remunerative, the land, being generally unsuited for any other crop, would relapse into jungle, and the money sunk in it would be lost.

"(7) The effect of the present currency policy on the tea industry in India is already seen in diminished profits, as shown by the published accounts of various tea companies, and every penny added artificially to the value of the rupee will reduce the profits of the industry this year by £250,000. The distrust which has been created is also putting a stop to the further extension of tea cultivation in India, and will, it is feared, divert capital from India to China for the purpose of developing the tea industry in the latter country under European supervision, and with modern methods of cultivation and manufacture. The future of Indian and Ceylon teas will depend largely on their increased consumption in countries outside the United Kingdom, and the burden placed on them by the artificial value given to the rupee will put them at a serious disadvantage in competition with China tea.

"Without entering upon a lengthened criticism of the currency policy of the Government of India, I am to point out that the closure of the mints to the free coinage of silver has not established that fixity of exchange which was the avowed main reason for the adoption of the measure, nor provided for the Government the supply of gold required to render the introduction of an effective gold standard practicable, and although the exchange value of the rupee has been raised to a higher level, thereby reducing the loss by exchange on the Secretary of State's drafts, this saving has been obtained at the cost of producers in India, while the stringency produced in the money market imposes a heavy burden on trade, and threatens, if prolonged, to have disastrous effects on the industries of the country. The further proposals of the Government of India, as set forth in their despatch, dated the 3rd March, 1898, are framed so as to increase the stringency referred to, with the object of compelling an exchange of gold for rupees at the rate of 1*s.* 4*d.* per rupee, or higher. This is an attempt on the part of the Government to obtain gold below its value in silver at the expense of producers in India with the certainty of heavy, and possibly ruinous, loss to industries upon which India has to depend for the maintenance of the favourable balance of trade required to enable it to meet its foreign indebtedness.

"I am desired to say that all, or any of the following

COFFEE SHADE TREE.

Sun-dried Erythrina Lithosperma loppings, &c., contain per on :—

61·50 lbs. Nitrogen.
57·38 „ Potash.
14·92 „ Lime.
13·68 „ Phosphoric Acid.

Seed cured under Messrs. Sutton and Sons' advice.

Orders should be booked early for the 1898-1899 crop of seed from he parent trees of above analysis at Rs.6 per pound containing bout 2,000 seeds. *Germination guaranteed.*

Only thornless variety extant, and is not procurable anywhere save om the

MANAGER, ARIENKOW ESTATE,
Shencottah.

gentlemen, who are members of the Association and have had extensive experience in connection with the Indian tea trade, will be prepared to attend as witnesses before the Committee whenever their evidence can be taken :—Mr. D. Cruickshank, Mr. R. B. Magor, Mr. J. N. Stuart and Mr. W. H. Verner."

LETTERS TO THE EDITOR.

FORKING ON LAND AS STEEP AS A ROOF.

SIR,—Some weeks ago a correspondent had some very confident notes on how to fork steep land. He went so far, indeed, as to declare he could safely fork land "as steep as the roof of a house" without fear of wash. Query, was the roof he had in his mind a corrugated iron one, or a thatched one? It makes just a little difference, you know. Anyway he might let us, poor outsiders, into the secrets of his methods, unless it's a case of "patent." Till then his assertions must remain like my land—

A TRIFLE STEEP.

"SIT-FAST."

SIR,—What "Via Palghat" terms a "*sit-fast*" is nothing more or less than a troublesome saddle gall. Many country-breds, especially those bred in the interior, are maltreated as colts, by being broken to saddle by the native method which has nothing to recommend it. If the "Chana" (native saddle) galls the pony on the bone *between* two joints, the animal escapes with a scar or white spot, but if *on* the joint itself, the bones get affected and a discharge given off, which collects over the part and throws up the covering skin in the form of a soft lump. It is very difficult in purchasing newly-trained (by native method) country-breds to know how the mischief lies, and only time will show. The following treatment will do good. First lance up the lump and keep the part well open. Poultice twice a day with linseed meal, adding a few drops of carbolic acid to the meal, till all pus and inflammation has been removed. Then use a solution of 1 to 15 of Cyona tincture (not stronger, as it will heal too quick), keep the place moist with the medicine, and allow the wound to heal gradually from the bottom. A fortnight should see the animal fit for use. A small lump will still be visible, but as it is only a bony growth, it will not interfere with the working of the pony. A high-padded saddle, raised well off the spine, and a small piece of lint sown on to the padding just above the gall, in case of accidents, should be used. Sanitas oil is another good remedy, but the manipulation of it needs a little skill and experience.

PLANTER VET.

GENERAL ARTICLES.

A CO-OPERATIVE SALTPETRE REFINERY.

WE publish below a further communication from "Toda" on this interesting subject. It is held with some truth that a little judicious opposition often does more to ensure the success of a scheme or venture than unqualified approval. So, while wishing "Toda" and his supporters—for we have already forwarded letters to him on the subject—all success, we have just a word or two to say on the letter beneath. Most of the sting of our criticism, however, will be taken out by our concluding paragraph. But to the point. In the absence of more exact information as to cost of plant, we may allow "Toda's" estimate to pass. As to the cost of manufacture, we are vouchsafed no information, and indeed are told that "this calculation does not enter into the question now." In all new undertakings, a certain amount of confidence is necessary, but surely this is carr ing it to excess. On the cost of production of a goo article depends the whole success of the undertaking, a though "Toda" may be absolutely correct in his convi tions, it will be difficult, I fancy, to communicate his co fidence to strangers. Had we nothing but "Toda's letters before us, we shonld certainly only reiterate t advice we have already given, to which he takes exceptio of exercising caution to our readers before taking up t scheme. Good commercial nitrate of potash usually co tains from 12 to 13 per cent. of nitrogen, being abo 2 per cent. under nitrate of soda. Presumably the expe sive article quoted by the Coast firms is up to this stan ard, but what we want to know is the composition country-made saltpetre, and whether the cost of produ tion is above or below the market price. In not a fe co-operative ventures, the result to the shareholders producing an article at cost price has proved unsatisfactor to say the least of it, being higher than the cost of t same article in the open market. It is idle to talk of co-operative refinery as not partaking of a commerci nature; its very essence is commercial: to produce for t benefit of the shareholders a certain article at a lower co than if purchased in the open market. It enters into dire competition with the trade, and must be run on sound co mercial principles if it is to be ever a success. We fe "Toda" will never forgive us for writing like this, b in all frankness our remarks are based on nothing save sincere desire to ensure the success of a scheme which m mean such a lot to the planting community. For it is n only in a saltpetre refinery that co-operation can be benefit; there are a hundred other directions where co bined effort would be invaluable.

Now for our concluding paragraph. It is this: that few years ago a planter experimented 'on his own' in saltpetre refinery and found it a great success. The initi outlay was only Rs.500, and he managed to secure an exce lent article at a cost of only fifty rupees a ton. The site the refinery in question was at Dindigul, and was on abandoned by reason of the planter parting with his inte ests in certain plantations in the adjoining district. W shall put "Toda" into communication with the gentlem in question if he desires, and meanwhile end with a hear wish of "Waes hael!" to the Planter's Refinery.

"Toda" writes to us :—

Kindly afford me space for a short reply to your Editorial the last issue of *Planting Opinion*, criticizing my letter with refe ence to the institution of a Co-operative Saltpetre Refinery. I a very pleased to see that my suggestion has your sympathy, a that "you are anxious to render it all the support you can."

You write, "The three main points that require to be settled wi some approach to accuracy are (i) the cost of erecting the necessa plant, (ii) the cost of the manufactured article, (iii) its manurial pr perties as determined by chemical analysis."

(i) *Cost of Plant.*—In my original letter I estimated the init outlay at (25 estates @ Rs.50 each) Rs.1,250. Of this, Rs.250 wou be required for erection of a building, purchase of iron pans, scal and weights, &c., and the balance, Rs.1,000, as advances to Opilig or crude saltpetre manufacturers. I know from experience what "refinery" is; and Rs.250 would certainly cover its cost.

(ii) *Cost of manufactured article.*—This could very easily be arriv at. It would be necessary first to ascertain the price paid now refiners for crude saltpetre, and then to note the exact yield refined saltpetre from a given weight of crude stuff, and the weig of fuel used in the process. But, in my view, this calculation do not enter into the question *now*. The primary object of the Refine

ve sketched would be to reduce the price of refined saltpetre to cribers; and whatever the cost of the manufactured article may that article would always be available to the owners of the nery at present market price *minus* the refiner's and retailer's ts. That the Refinery would achieve its object is beyond tion. It would of course be necessary to go into a careful lation of cost of manufacture, in order to fix the issue (or cost) to subscribers. But the "cost of manufactured article" need form any obstacle to the establishment of the Refinery.

) *Chemical Analysis.*—This is the most important point, because, he value of the outturn as manure, the success of the Refinery d hinge. I will have a chemical analysis of ordinary native- e saltpetre carried out as quickly as possible; but many yses must have been made already (as saltpetre is usually sold oast agents and others with a guarantee), and I would ask any- in possession of such analyses to publish them, stating if ible where the saltpetre was made. I may here point out that Refinery could outturn saltpetre of almost any required degree rity, the only extra cost being price of fuel consumed. If the lish method of refining were adopted, which is both simple and pensive, absolutely pure nitrate of potash could be manufactured. ou go on to say, "It is a sensible proverb that says 'make haste ly.' Saltpetre refineries, whether co-operative or not, are com- ial ventures, and it would be the height of folly to rush an ertaking of this kind." That *festina lente* is a sound maxim ite agree, and I was careful in my first letter to say, "There are y minor details which will have to be gone into; but of course scheme need not be elaborated until and unless I find the ssary funds forthcoming." But, to the latter part of the state- t I have quoted, I cannot subscribe. A co-operative refinery ed with the object of entering into competition with other eries, and of paying a dividend to shareholders, would unques- ably be a "commercial venture," but the Refinery I contem- e run on totally different lines. It would in no sense be nmercial," in that it would not in any way depend on 'com- cium,' or trading; though possibly, when started, any stock over above the requirements of subscribers might with advantage old to non-subscribers at market rates. But the fundamental ct of the Refinery I have sketched would be to supply its owners all the saltpetre they require at cost price, and it cannot there- be characterised as a trading concern at all. And how can it be d a "venture," when all element of risk is absent? On the rary, it would necessarily be an assured success from the very nning, because—whatever the price of saltpetre in the open ket—subscribers would be able to procure their supplies at a h lower rate. In other words, the owners of the Refinery would the large profits now pocketed by the native refiner and the t. A refinery run on the lines I have laid down would be in a different category from a "commercial venture." Its expressed ct would be fulfilled from the start; and I would rather call it a tain success."

FIGHTING PESTS WITH PARASITES.

HE greatest single industry of California is fruit-growing, says *Sydney Mail*, and the importance of this industry has led to the y of every method which would increase its profits or lessen its nses. In this studies that of economic entomology has taken a most place, for the most obdurate and expensive enemy the ardist has to combat is the myriad insect pests that attack him very point and lessen his profits on all sides.

he result of years of careful study and continuous fighting with ys and washes and gases is what may be called the California hod—that of fighting insects with insects– a sort of homœopathic edy of like curing like. Wherever insect pests have become ructive, efforts to find and introduce their natural parasites been made, and usually with good results. Artificial methods resorted to as a temporary expedient until better means could ad.

roughout all Nature there exists a perfect system of checks counter checks, and otherwise redundant life is kept down and balance preserved. It is this fact that the Californians endea- to take advantage of. The worst pests that are known there all imported varieties. They were brought into her borders n California, ambitious to become the garden of the Union, orted all varieties of plants from every part of the world. In very many cases they were destructive varieties of insects without their natural parasites. Removed from their natural enemies these pests increased with wonderful rapidity and became a threatening danger.

One of the worst of these was the now well-known cottony cushion scale (Icerya purchasi), which at one time threatened the total destruction of the orange orchards of the State. All artificial methods of combating this pest were unavailing. At last it was suggested that, inasmuch as the scale had been brought from Australia, where it was a native and not a pest, there must be some natural parasite which kept it in check. Upon this suggestion action was taken, and the now famous Vedalia cardinalis was introduced. The result of the labours of this one little parasite is that California will this year ship 12,000 cartloads of oranges, whereas she would have had none had it not been for its labours, for the shipments at one time fell to 600 cars, and scores of orchards were being cut down and burned.

The wonderful success of this importation of parasitic friends led to the further study of parasitism in insects, which was aided by the State, and large importations of parasitic insects have been made with varying but usually good results. In some cases parasites have been introduced with the scales themselves, and in these cases the spread of the pest has not been rapid. In other cases natural parasites have adapted themselves to new conditions, and attacked the imported insects. There are now very few scale insects in California which do not have some parasites. There are sections, however, in which the parasites have not got a foothold, and the pests increase rapidly, while in some cases the scale increases beyond the power of the parasite to keep it in check. But, as a rule, the effort to introduce and propagate beneficial insects has met with marked success. While artificial methods of fighting pests have still to be resorted to for some varieties and in some sections, these have been and are still being lessened, much to the benefit of the fruit-grower, by taking advantage of Nature's methods of keeping them in check.

THE WORK OF LADY-BIRDS.

REPORT OF PROF. ALBERT KOEBELE, ENTOMOLOGIST OF THE HAWAIIAN GOVERNMENT.

(Continued.)

Lecanium hesperidum, Linnæus, is but rarely found on the higher altitudes; it comes from the temperate zones.

Lecanium longulum, Douglas, is one of our commonest species and attacks most any plant on the islands. It was this species that caused the smutty appearance of the iron-wood trees in the park before the introduction of the Rhizobius beetle. It is found in the tropics only out of doors.

Lecanium mori, Signoret, is found also upon many plants in the islands, on various ferns, guava, etc.

Lecanium nigrum, Nietner, the commonest of all scale insects in the islands, nearly always can be found upon the Hibiscus hedges, Groton, guava, fig trees, etc. It was met with everywhere in the tropics, Fiji, New Caledonia, Queensland, Ceylon, Singapore, Hong Kong and Formosa. In Japan it cannot live out of doors, and is found only in green houses.

Lecanium oleæ, Bernard, is not found numerous in tropical countries, it is rarely met with in Honolulu, only in one instance have I seen it numerous upon oleander, on Hawaii.

Lecanium tessellatum, Signoret, another species found here and there, but not numerous as yet, it is more often attacked by internal parasites.

Pulvinaria momeæ, Maskell, and an unnamed species in Kona, are perhaps the only well established species aside from P. psidii mentioned above. It had first been found upon Mamea Americana, Linni, during January, 1894, but since then it was found on many trees in Honolulu, especially mango and fig. No parasite has been observed on the same, yet without any doubt the Cryptolæmus larvæ and those of the numerous species of Hyperaspis introduced from California and Japan will destroy its eggs. A fourth species of Pulvinaria was found at Honolulu upon newly introduced Potocarpus from Japan, where the insect is rather rare upon many trees, especially the camellia and magnolia.

Planchonia sp., so far but one specimen was found in Honolulu upon Jacaranda mimosifolia, Prosopis dulcis, Oleander, fig trees, etc., snd it is preyed upon by an internal Chacid parasite to such an extent that in some instances the scale has disappeared entirely from eome trees. Found at Hong Kong, China, upon fig tree and badly parasiteized. Eryococeus araucariæ, Maskell, is found on all the islands upon the various species of Araucaria; it comes from Australasia.

Of Dactylopius we have a great many species in the islands, but yet they are, with a few exceptions, not worked up. It is one of the most easily species to introduce, since many of them when full grown will often leave the plant and secrete themselves most anywhere to deposit their eggs, often on the roots, in any crevice or behind leaves on stem, etc., the most minute examination of plants could not reveal them.

Icerya purchasi, Maskell, is so far the only species present in the islands, I. Aegyptiaca, Douglas, and I. Seychellarum, Westwood, are found on many plants around Hong Kong and may be brought in at any time. The two lady-birds preying on those species in China, *viz.*, Rodalia fumida, Muls. and R. pumila, Weise, were introduced and no doubt are breeding upon I. purchasi, which, once so numerous, can now only be found after careful search.

The above comprise the principal coccids found in the islands, very many of them are preyed upon by internal parasites that were brought in with their host. Some of these are doing very beneficial work, often destroyiug a large percentage of the scales. Only in few instances were scale insects with internal parasites introduced by me, since there is more or less risk in doing so, it was considered the safest way to follow, only to send the numerous predatious insects found preying on the scales, and here we have the numerous lady-birds, some two hundred species of which had been introduced with more or less success. It seems that those introduced from the tropical countries, or such that are found in similar latitudes to that of the islands with a few degrees, have succeeded best to establish themselves; especially when the same coccid upon which they fed in their home was at hand, the increase was marvellous.

Aside from the parasites and predacious insects introduced, we have established two species of fungoids destructive to all the Lecanidæ, and these have since spread over most parts of the islands. A repeated trial with a third, Microcera coccophylla, that lives upon the expense of the various Diaspidinæ. has as yet not been so successful. Still I am confident of also establishing this very valuable agent to eradicate the scales. It was met with in New South Wales northward to Cairns, Queensland. It is present in Ceylon, China Formosa and even as far north as southern Japan, chiefly upon the various Aspidiotus and Mitilaspis, coccids that are always abundant where they occur, owing to their hard protective covering, the enemies preying upon the same have not the equal chance as those preying upon other scales.

At the present time, the most pernicious coccids, at least, have practically become harmless and will become still more so with the increase of their various enemies. I anticipate no danger to the vastly increasing coffee culture by scale insects still present, some of these will yet cause a little trouble to the citrus trees, but I am confident to overcome the same in the near future, as has been done in the past, not with artificial means, but with natural enemies, which, when once established, are an everlasting benefit to the country where introduced.

Of the introduced Coccinellidæ I will give a short account of some of them. To my knowledge, and that of Rev. Blackburn, who studied the insects on the islands some twenty years since, only three species of lady-birds were present. Those were Coccinella abdominalis, say, an American insect, and no doubt introduced at a very early date, since it has been known to the oldest residents. It feeds upon Lecanidæ and Aphids, is not a fast breeder, and since the introduction of other forms has become much less in numbers. The other two are small Scymnus, S. ocellatus, Sharp, and S. vividus, Sharp, the last at least, has repeatedly been found breeding upon plant lice. Owing to the large quantities of Coccinella repanta on the islands, none of the California forms that live upon plant lice have been observed as yet, save that one visitor on the dinner table in the club on Nov. 10th, viz., Coccinella Californica, Man., introduced two years since, yet we are safe to say, several species will turn time, if properly searched for. Chilochorus bivulnerus, Muls brought to the islands, in 1891, on my trip to Australia and t over to Mr. A. Jaeger, who liberated the same.

Again large quantities were sent to you during Dec., 1894, w other California forms. The insect was found breeding, both i and during the last summer, yet never numerous. This is one most numerous native lady-birds in California that feed upon v scale insects, and a higher altitude may be suitable for their in Sendings of these as all other forms will be made again various parts on the other islands direct. Hyperaspis were s you in several species, all of these feeding upon the various bugs (Dactylopius), then so numerous in Honolulu. You forwarded one of the beetles to me at Sydney, some ten m later, as breeding in Honolulu. This has been H. undulate, and I personally have not met with it since, owing no doubt enormous increase of other forms, and in consequence the sc of its food.

Large numbers of Scymnus were also forwarded to you strange to say one of the very rarest California species, S. d Lec., that had not been found again ever since being describe forty years ago, was met with in quantities while collecting bius upon Casuarina. The little beetle in California breeds Dactylopius, and very likely on the same in the islands, D. c laria, Maskell, on the sugarcane would be similar to that on in California.

Of the Australian forms we certainly have the most benefi all the lady-birds introduced. Of the Aphis feeding species, nella repanta, thumb, has done wonders in destroying all the v forms of lice on trees, shrubs and plants. It appears usually upon the orange plant louse; it has practically cleaned out th louse, and with it has cured the formerly so prevalent disease these plants, which decayed to a large extent in consequence myriads of plant lice present; and recently it has shown its a upon the newly appeared louse in the cane fields at Kauai, Oah Maui. It has spread within one year, after being distributed b over all parts of the islands, and was met with both on Hawa Maui as high up as timber will grow. How unfortunate, that such beneficial friends we should find a parasite destroying the to a large extent, yet such is the fact. Everywhere the beetles be found, apparently at rest on the leaves, yet under it and be its legs a small yellowish silken cocoon is found, from which time hatches a small black hymenopterous parasite, Centistes A cana, Riley, an insect found all over the world preying on aphid fe lady-birds. How long the parasite has been present on the isla hard to say. Undoubtedly it had been breeding upon Coccinella minalis many years. It had been found upon the same by M Miller and Wait at Kona before the introduction of other Cocci by me. Leis conformis, Boisd, had been observed breeding up orange Aphis early in 1894. Another very valuable lady-bird tha upon the various Aphids, and one that had always been fou small numbers only in Australia is Platyomus lividigaster, Mu It was met with in that country from New South Wales up to C Queensland, and chiefly upon the orange Aphis. It was also n that a larger percentage of their larva were destroyed by a pa and owing to this fact the comparative scarcity may be acco for. On the other hand, there is no such parasite as yet kno the islands, the beetle was never yet found destroyed by the tistes fly and in consequence may even prove of more value i than the Coccinella rapanta. Its dusky larva is unlike those Coccinella proper; it is covered all over with long spines for p tion. The rather small black beetle is nearly round and h sides of thorax bright sulphur yellow. It is a most active cre

Of Orcus, O. Chalybeus, Boisd, has increased most upon th ous Diaspidinæ chiefly, yet it will feed upon most any scale a as Asphids. The Cryptolæmus mountrouzieri, Mulsant, is opinion the most valuable lady-bird introduced into the island is always found upon any plant infested with mealy bug relentlessly follows up that destructive Pulvinaria and devou eggs. It likewise devours Eriococcus araucariæ, Maskell, inf the various Araucarias. You distributed the same during 189 on my recent inspection it was met with everywhere on a islands upon its fast disappearing food; around the Volcano,

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he various forest trees and shrubs it was very numerous; from here down Pahala over the lava flows it was numerous; upon the canty bushes growing. In Kona it was met with up to an altitude of 6,000 feet, and here was simply swarming upon Myoporum sandvicene, Gray, infested with Lecanium fillicum, Boisduval, its larva feeding upon the Dactylopius present. On Maui it was found upwards to the timber line and is very likely even higher. That famed Vedalia cardinalis, Mulsant, did good work in Honolulu upon the one scale, Icerya purchasii, Maskell. The Cryptolæmus beetle did equally well upon about a dozen species of coccids. Many other enemies were introduced for the Icerya scale, and one of them at least, Novius Koebelei, is at present abundant.

Of Rhizobius a large number of species were introduced, and R. lentralis, Erichson, that feeds upon the various Lecanidæ, has become the most abundant. It will feed upon Pulvinaria as well and can at any time be found upon Araucaria trees, preying upon Icrioccus; owing to its valuable work, the numerous species of black scales are disappearing. At the Kapiolani Park the Casurina, formerly a complete black mass, owing to the numerous Lecanium longulum, Douglas, have entirely recovered from the blighty appearance, and both the beetles and larvæ could be found in any numbers during summer. Of the smaller Australian beetles, Cyreme nigellum Black burn, has perhaps increased most, and it was met with every where in Honolulu.

With the Ceylon Coccinellids nothing could be done, the distance is too great and all arrived at Honolulu dead. One of these, and certainly the most valuable found there, Chilochorus circumdatus, Gyllh., was later sent over from China. This insect had been recorded from Ceylon, India, and Sumatra, and consequently its occurrence around Hong Kong could be expected. During three months, Oct. to Dec., 1895, a careful search had been made in the neighbourhood of Hong Kong, and of the insects introduced many were breeding in the island.

Synonyche grandis, Thumberg, is the largest known lady-bird that feeds upon Oregma bambusæ, Buckton, infesting the various bambus plants in the Malay Archipelago, Ceylon, China and the southern Japan. A fresh specimen of these was found upon orange aphids in Honolulu on May 6, 1896, and may have bred here. Verania discolor, Fabr., found near Hong Kong and Swatow was again met with in Honolulu eleven months later; it feeds upon aphids. Coelophora pupillata, Swartz, found common near Hong Kong upon Celtis sinensis, infested with Psylla, was met with all summer upon Aphis at Honolulu.

Coelophora biplagiata, Swartz, collected and sent from Hong Kong, has been noticed in Honolulu for several months after my return. Chilomenes quartriplagiata, Swartz, had been observed feeding upon plant lice and Dactylopius and will prove a valuable addition. Cryptogonus orbiculatus, Gyllh, is a very common little lady-bird. It was found numerous upon orange, etc., at Atami, Japan, it was breeding by the thousands upon Mimosa pudica, L., infested with Dactylopius adonidum, Linn,—the common mealy bug,—at Conloong, China, and in Formosa again, it was numerous upon the tea plants that were infested with Chionaspis there. This will be another valuable help in destroying the various mealy bugs. The beetle was found very numerous during November at Honolulu.

(*To be concluded.*)

MAINTAINING THE FERTILITY OF THE SOIL.

As agriculture will doubtless always remain the basis of human industry, and as a prosperous system of agriculture can only be built upon a fertile soil, it is evident that the maintenance of the fertility of our farms is one of the most important of all economic problems. This subject has been usefully treated by Professor E. Thorne, Director of the Agricultural Station at Ohio.

That a soil may be speedily reduced in fertility under an improvident system of husbandry, and that the original richness of the once fertile land may be restored, although sometimes slowly and laboriously, are matters of common observation. The author states that his recollection goes back to within half a century of the first settlement of the white man in that part of Ohio where he was born; and he can recall old districts which had been thrown out of cultivation as exhausted, and permitted to grow up in weeds and briars, while new fields were laboriously hewn from the forest; but as the pressure for land became more intense, these old worn-out lands were again brought under the plough, and, with a more enlightened system of farming have been made to produce crops equal to those yielded by virgin soils. The history of British agriculture furnishes a most valuable object-lesson on this point. We find that at the close of the thirteenth century the average yield of wheat in England was from ten to fifteen bushels per acre. At the end of the seventeenth century the average yield on the well-tilled and manured lands was twenty bushels per acre. In 1771 Arthur Young estimated the average yield of wheat at three-quarters or twenty-four bushels, while the following table shows the average yield of wheat per acre over each eight yearly periods from 1852, and over the forty years 1852—1891 reckoned in bushels of 60 lb. weight. Average yield of wheat per acre in the United Kingdom:

8 years,	1852–59	...	$28\frac{3}{8}$ bushels
8 „	1860–67	...	$28\frac{1}{8}$ „
8 „	1868–75	...	$27\frac{1}{8}$ „
8 „	1876–83	...	$25\frac{1}{4}$ „
8 „	1884–91	...	$29\frac{7}{8}$ „
40 „	1852–91	...	$27\frac{7}{8}$ „

The date shows that the range is from about twenty-five bushels to thirty bushels, with an average yield over the forty years of nearly twenty-eight bushels per acre.

The increase of wheat per acre in this country for the last five and-a-half centuries may therefore be ascribed altogether to better husbandry, including better tillage, better drainage, and a more extended use of the manure made on the farm, for it is only within a comparatively recent period that the use of commercial fertilisers has played any important part in British agriculture. Indeed, it was rare even twenty-five years ago to hear such fertilisers spoken of otherwise than unfavourably.

Wherever good cultivation has been adopted and the natural sources of fertility systematically provided for and made use of, there has been no decline in the productiveness of the soil; and lands which have been under culture for very many centuries are still yielding harvests equal to, or better, than those soils freshly brought under the plough. These facts abundantly prove that the maintenance of fertility in a soil is thoroughly practicable.

The real point of issue, therefore, is to learn to what extent we may call to our aid the discoveries of modern science in reducing the cost of, and making more effective the empirial methods of our forefathers, or whether we may substitute for those methods others yet more effective.

While the farmer may have been disappointed in the expectation raised by the discoveries of the earlier chemists, that chemical analysis was to be the X ray which should reveal clearly and definitely the plant producing capacity of a given soil, and the food requirements of a particular plant or crop, yet it must be conceded that chemistry has done much for the farmer and horticulturist in both these directions, and as we learn to read the revelations of chemistry by the assisting lights of geology and biology, we are slowly and laboriously, but surely, working out the problems of plant nutrition, and it now seems safe to formulate a few general principles as being sufficiently established to justify building upon them a scheme of farm or horticultural management.

(1) The carbon of green-leaved plants is absorbed directly and practically exclusively from the atmosphere, through the medium of the foliage. At least, the soil supply of carbon is a matter of minor importance.

(2) The oxygen of such plants is chiefly absorbed in like manner by the foliage, or taken up by the roots in combination with hydrogen, in the form of water, although a minor and comparatively unimportant source of oxygen and hydrogen may be found in the breaking up of nitrates and ammonia existing in the soil.

(3) The nitrogen of green-leaved plants is obtained invariably from the soil, either directly, or from compounds of nitrogen with oxygen, hydrogen, or mineral, or organic compounds such as nitric acid, ammonia, nitric and humes: or indirectly through symbiotic growth of micro-organism living in the soil which have the power of assimilating the free nitrogen of the atmosphere. This symbiotic growth being apparently confined almort exclusively to leguminous plants, such as the clovers, beans, peas, Lucerne, sainfoin, &c.

(4) The mineral constituents of plants are taken directly from the soil, being absorbed by the roots in the form of solution in water.

(5) The ten or more mineral elements found in the ash of plants when burnt will be furnished in abundance by practically all fertile soils, provided there be present a sufficient quantity of available potash and phosphoric acid, and sometime also of lime.

(6) The various elementary substances found in plants are combined with each other in certain definite proportions varying in different species, but held within very narrow limits for each species. The growth of plants is measured and limited by the least abundant of the various elements required for their nutrition.

Reducing these principles to a practical form, we may say that the plant will secure a full supply of carbon provided other nutrients are furnished; that the supply of oxygen and hydrogen is chiefly dependent upon the water supply, that the amount of nitrogen may be regulated by the use of mineral nitrates or ammonia salts, or the setting up in the soil of those conditions which favour the growth of nitrogen-working micro-organisms, and that having provided a full nitrogen supply, we may control the growth of the plant by giving or withholding phosphoric acid and potash.

The water-supply of plants is a matter of supreme importance, for not only does water comprise three-fourths or more of the actual weight of cultivated plants when growing, but it is the vehicle in which all the mineral and nitrogenous constituents of plant food are carried to their destination.

In performance of this function it is constantly passing through the plant, being absorbed by the roots and transpired by the foliage, it being estimated that more than 3000 lb. of water must pass through the plant for the deposition of a single pound of dry substance in the plant, and thus the question of the water-supply by irrigation in arid region and by tillage and drainage in all localities becomes one which cannot be neglected. The nitrogen supply takes rank next to that of water in importance, for it is this constituent which may be most quickly exhausted by an improvident course of cropping, and which is the most expensive to replace by artificial methods.

In our artificial manure markets the price demanded for a pound of nitrogen 8*d.* to 1*s.* or more—two to four times as much as is asked for a pound of phosphoric acid or potash and as nitrogen is found in larger quantity in most cultivated plants than is phosphoric acid and sometimes even larger than is the constituent potash, it will be seen that the cost of providing this element of plant food in artificial fertiliser must be a serious and expensive matter.

When it is considered that the plant food in the soil must be of very slow solubility in order that it may not at once be washed away by heavy rains, and when we reflect upon the observed fact that when certain forms of soluble plant food are applied, such as superphosphates, for instance a large part of it is immediately converted into an insoluble or very slowly soluble condition by reactions within the soil, it it can readily be understood that it is impossible to realise in the growth of a single season, or even in many seasous the entire quantity of plant food applied in manure.

But accepting the fact which seems to be demonstrated beyond question that the entire amount of plant food applied in a fertiliser will not be returned in the crop, the question arises, especially in view of the light which recent discoveries have thrown upon the methods by which the inert nitrogen of the soil is converted into assimilable form through the agency of nitrifying organisms, and upon the still more interesting problem of the assimilation of free nitrogen through the agency of symbiotic growth, may the farmer not hope to be able to dispense—to a large extent at all events—with purchased nitrogen, and accomplish the end in view by the growth of leguminous crops and the addition of phosphoric acid and potash only?

The experimental answer to this question involves the culture of crops in rotation, and of all the work, the world over, bearing upon this subject that in Agdell Field, at Rothamsted, under the management of Sir John Lawes and Sir Henry Gilbert, which has been under experimental investigation since the year 1848, is the most complete.—J. J. W. in the *Field*.

PRODUCTS AND RESOURCES OF THE PHILIPPINE ISLANDS.

THE great commercial products of the Philippine Archipelago are sugar, hemp, tobacco, copra and coffee, and their importance, as articles of export, are in the order given.

The production of sugar has increased rapidly. In 1871 it less than 100,000 tons; in 1881, 230,000 tons; in 1893, 261,686 t and it was then increasing at the rate of 15,000 tons per y About one-third of the total production is from the provinc Pampanga, in the central area of Luzon, and nearly north of Ma The provinces about Manila Bay and the one north of Pampang also large producers. This sugar is exported from Manila, and chiefly to Spain and Great Britain, says M. W. Harrington, i *Scientific American*.

A better quality of sugar, but in smaller quantities, is obta from the violet-coloured cane in the central islands of Panay Negros. The very best comes from the province of Capiz, o north coast of Panay. This sugar is imported from Ilo-ilo, a sent chiefly to the United States.

The processes of manufacture are yet crude and antiqu There are a few large plantations, and these are generally mona These plantations are usually leased to Chinese half-breeds, whom better results are obtained than from Europeans. The s cultivators perform their own work with hired labour, but s under the difficulty of not being able to manufacture economic There is a tendency toward their absorption into larger est under the charge of corporations.

The Manila hemp is so called because of the resemblance o fibre to that of hemp, at least in colour. It is derived from the stem of a banana plant (Musatextilis). The plant has an ine fruit, and grows in poor soil. The best plants grow in south-ea Luzon and the adjacent islands of Samar, Leyte, and Bohol. plant is rudely cultivated, cut down when three years' old, an fibres separated from the surrounding tissue by rude dom machines. It takes two natives to prepare twenty-five po a day.

The coarser outside fibres are exported in the crude state, ch to Great Britain, the United States, and the Australian colo where they are used for making a highly-prized cordage. The fibres are used at home for domestic manufactures of fabrics use dress and ornament. They are light, transparent and very dur The fabrics are varied by using some cotton, silk, or other fibre the Manila hemp.

The native name for the fibre is abacá, taken from the plant. abacá has been introduced into other parts of the world, but conditions of its native home of the Philippines are more favou and the labour is there so cheap that no successful competition been established.

Export of abacá began in 1831, and the amount exported is ste increasing. In 1893 it amounted to 97,787 tons, valued at million dollars.

Next in order of value, but first in popular estimation, is th called Manila tobacco. It is a highly-prized tobacco, classed by as the equal of Havana tobacco, and by a few as its superior. Ce it is that some Manila leaf is imported into Cuba, though it is known how it is used. The Cuban tobacco is classified with re to its excellence, the Manila with regard to its fine appear Manila tobacco is stronger than it looks, and it has a fine b flavour, to which those who use it become very much attached.

The tobacco was made a monopoly of the Government in That is, anyone could raise it, but the Government only could b and could set the price and pay for it when it pleased. It pleased to be two or three years behind in its payment. In this restriction was removed, and small growers now can produ more profitably.

It is grown over Luzon and the neighbouring islands, but very best comes from the two large provinces of Cagayan and Isa in the extreme north-eastern part of the island. Here the suitable for it is now all occupied. The cultivation of the requires little labour. The man of the household usually perf the tillage, and the women and children the rest of the work.

Rather less than half of the crop is sent out in the leaf, and goes largely to Spain and other European countries. The remai is made up into cigars and cigarettes, two-thirds of which are sumed at home and the remainder exported, chiefly to the neighb ing countries of continental Asia and Japan. In 1893 about 1 tons of leaf were exported and near 140,000,000 of cigars. The of this tobacco in the Oriental countries is low. Boxes of excellent cheroots (a cigar open at both ends) can be got for 18

The copra is a preparation of the cocoanut made in great quantities tropical islands all over the world. It seems to be a relatively w product for the Philippines; 11,500 tons were exported in 1893. he cocoa palm is very common and highly prized in the Philippines. ll parts of it are used.

Coffee was introduced in the Philippines, probably in the latter part the eighteenth century from Brazil. The first large plantation as established in 1826, and the production began to extend actively teen or twenty years ago. Latterly the export has decreased very eatly. It used to average 2,500 tons a year, but has recently sunk only 300. This is probably due to the revolution, for the coffee is good quality, some of it excellent.

Unlike Manila hemp and tobacco, the coffee requires some capital the part of those who undertake it. It takes the trees four or e years to begin to bear. Those who are able to make the necesry advances have prospered greatly, and, especially about Manila, ve become rich.

The exported coffees formerly went exclusively to France, but are w scattered well over Europe, usually through Singapore. They e of two sorts, the Manila and the Zamboanga. The first is grown out Manila, chiefly to the south and east of Manila Bay. It has a all berry and is more highly prized than the other. The Zamboga coffee is produced in the south, principally on Mindanao and e Sulu Islands. The berry of this variety is larger, but less care used in its preparation. It goes directly to Singapore.

Rice is the chief product of the Philippine Islands, but it is not ported. It is the staple food of the natives, and sometimes the pply is short. Both the mountain and lowland rice are produced, d more than ninety varieties are known. It is easy to cultivate em, and in favourable years the yield is very generous.

Maize is grown in considerable quantities. So are the sweet tato, yams, ground nuts, gourds, potatoes, peas. A little wheat raised at high elevations. Among the fruits are the mango, antain, banana, mangosteen, jack fruit, medlars, lanzon and durian, e last especially in the Sulu Islands. The islands are generally ountainous, and at proper elevations the fruits of southern Europe d of Florida flourish, as the orange, citron and sapotilla.

The cotton of this archipelago is excellent, and its production akes some progress. The cacao can be successfully grown and of od quality, but little attention is paid to it. The tea plant has en tried in botanic gardens and is found to thrive. The islands e rich in odorous flowers, and the manufacture of essences and rfumes is increasing. Cinnamon, the pepper tree, and many ner of the valuable plants of the Malay Peninsula and the East dies either grow here naturally or can be easily introduced.

The islands are very rich in forests, and they contain many valule woods, mostly unknown even by name in the rest of the world. here are said to be thirty-two tinctorial woods, giving the entire ries of colours and shades. Among the valuable ones is the ebony, th very black and fine-grained wood, of high value for fine rniture. The magkano of the forests of Mindanao is said to be solutely indestructible by rot. The forests generally remain intact the interior except for Luzon, where they have been extensively inned out or cleared off.

The chief domestic animal is that useful and tractable Oriental ast, the buffalo, not our bison, but the buffalo proper. He is pecially useful in the simple and rude tillage still used by the tives. The horse is small, active, hardy, but rustic. He is derived a mixture of Oriental and Occidental stocks. The ox, goat and g do well, but the sheep are inferior. The most of these animals ve in places escaped from domestication, and large numbers of wild es may be found, usually in herds.

The native manufactures of the Philippines are not few, and their xtile fabrics are especially fine and worthy of a larger market than ey have so far found. The natives make many other things, among em a coarse pottery of great utility.

Valuable minerals are generally diffused through the islands, but w are yet mined profitably. Gold exists generally over the entire ea, in placers and veins, but usually in quantities which do not y with the rude methods employed for its collection. It is mined the Camarines Norte province in south-eastern Luzon and in the isamis and Surigao placers of northern and north-eastern Mindao, but with small results. With the refined modern methods of collecting gold it could be profitably obtained in many places, and probably the prospecting has been incompletely done.

There are two known coal fields, one in southern Luzon, the other on the western slopes of Cebu and the eastern of Negros. The first probably extends over into Samar, and has furnished good steaming coal. One bed is known to be ten to twenty feet thick. In the other there are at least five beds of varying thickness and quality.

Iron ore of excellent quality is known in southern Luzon, especially in the Camachin Mountains, where there are now a few small foundries. Copper ore has long been known in the province of Lepanto. It was early worked by the natives, and in 1862 a company was formed to conduct copper mining in this region. It is also found on Masbati Island, on Panay, and in several other places. Traces of lead and mercury are known, and also of rock oil. Sulphur is obtained on Leyte for use in the powder factory at Manila. It comes from a solfatara at Mount Manacagan.—*Land & Water.*

DISTRICT ASSOCIATIONS.

WYNAAD.

PROCEEDINGS of a General Meeting held at Meppadi on 6th July, 1898.

PRESENT.—Messrs. R. K. Walker (*Chairman*), C. E. Abbott, H. Atzenwiler, Dr. Barboza, E. H. F. Day, A. C. Glenie, J. W. Hockin, R. Lamb, W. Mackinlay, B. Malcolm, J. S. Nicolls, E. H. Powell, S. Robinson, G. Romilly, S. Taylor, and E. deFonblanque (*Honorary Secretary*).

The Proceedings of the last meeting were taken as read.

Subscriptions to U.P.A.S.I.—Proposed by Mr. C. E. Abbott, *seconded* by Mr. H. Atzenwiler, that this Association subscribe the sum of Rs.400 to the U.P.A.S.I. for the year 1898-99. *Carried.*

Delegate at U.P.A.S.I. Annual Meeting.—Proposed by Mr. G. Romilly, *seconded* by Mr. H. Atzenwiler, that Mr. J. W. Hockin be W.P.A. delegate at the Annual Meeting of the U.P.A.S.I., and that the sum of Rs.175 be paid towards defraying his expenses. *Carried.*

Cattle Trespass.—Read letter from the District Magistrate, Calicut, with enclosure, stating that the maximum penalty for cattle respass in Wynaad Taluqhas been raised to Rs.50. *Recorded.*

Civil Hospital.—Read letter from the President, Wynaad Taluq Board, to the President, District Board, Malabar, and forwarded by the latter to the Honorary Secretary, Wynaad Planters' Association, on the subject of estate coolies presenting themselves for treatment at the Civil Hospital without letters from their employers. *Proposed* by Mr. G. Romilly, *seconded* by Mr. R. Lamb, "That a very strong protest be made by the W.P.A. to the Collector of Malabar against the statement made by the President of Wynaad Taluq Board to the effect that coolies are sent in destitute to the Vayitri Hospital without money or letters from the Superintendents of their estates; and to ask that, if any such cases should occur in future, notice should at once be given to the Superintendents who are accused of sending their sick coolies adrift." *Carried.*

Pudu Padi Hotel.—Read letter from Mr. T. J. Ferguson. *Proposed* by Mr. R. Lamb, *seconded* by Mr. E. deFonblanque, that Mr. Ferguson be asked to obtain the consent of the surviving subscribers to the Pudu Padi Hotel Fund to hand over the fund to a committee of three or five gentlemen to be appointed by the W. P. A. *Carried.*

Roads.—Proposed by Mr. G. Romilly, *seconded* by Mr. C. E. Abbott, that the Secretary, U.P.A.S.I., be asked for an answer to the letter from Wynaad P.A. of 21st January on the subject of roads: also that the Secretary to the Government of Mysore be asked for an answer to the letter of 21st August, 1897, on the subject of the condition of the Sultan's Battery Gundlepett road.

Sultan's Battery Post Office.—The Honorary Secretary was requested to write to the Postmaster-General asking for an answer to the petition of the Association that the Sultan's Battery Post Office be made into a "sub" instead of a "branch" office.

U.P.A.S.I.—Mr. G. Romilly stated:—

1. That the Annual Meeting would be held at Bangalore on Monday, 8th August.

2. *Lady-birds.*—That Mr. Newport had returned from Australia, but that unfortunately, when he came to thaw out the lady-birds on his estate, they were all found to be dead. He attributed this to the fact that the captain of the S.S. *Oroya* had insisted on putting them into the refrigerating room, and that he himself did not see them until arriving at Colombo, when he found that damp had got into the cases.

3. *Currency Committee.*—That Mr. Acworth and Mr. Robert Elliott would both be summoned to give evidence before the committee, but that Mr. Hodgson's evidence had been declined.

Papers on the Table.—Central Travancore Planters' Association, Lower Pulney's Planters' Association, Shevaroy Planters' Association, Coorg Planters' Association, Annual General Meeting North Mysore Planters' Association, Nilgiri Planters' Association.

A vote of thanks to the chair closed the proceedings.

E. DEFONBLANQUE, *Hon. Secy., W.P.A.*

NELLIAMPATHY.

PROCEEDINGS of a Meeting held at Victoria Bungalow, July 11, 1898.

PRESENT.—Messrs. Barnes, Everington, Fenton C. Hall, F. Jones, Welchman and J. C. Abbott (*Hon. Secy.*) Mr. C. Hall in the chair.

Read proceedings of last meeting.

Quit-rents.—*Read* letter to the Dewan and his reply thanking the Association for so readily agreeing with his suggestion. *Read* circular from the Dewan stating that cheques would be no longer accepted in payment of quit-rents, but that payments must be made in cash or currency notes.

Hospital.—*Read* letter from the Medical Officer stating that the Dewan approved of the proposed site near the bazaar, and that steps would be taken to acquire the land. The Honorary Secretary was requested to write and ascertain when the buildings were likely to be commenced.

Roads.—*Read* letter to the Chief Engineer calling his attention to the bad condition of the bridge and causeway in Poothoondoo Estate. As no reply has been received, the Honorary Secretary was requested to write again and point out that great inconvenience was being caused by this road being blocked.

Lady-birds.—Read extracts from Mr. Newport's letters. The Association notes with regret that Mr. Newport had not succeeded in bringing back any of the lady-birds alive.

Currency.—*Read* extracts from the correspondence on this subject.

Annual Meeting, U.P.A.S.I.—Read letter from the Secretary, U.P.A.S.I., stating that the meeting would commence on the 8th August. Messrs. C. Hall and J. C. Abbott were elected to represent this Association.

New Members.—Messrs. G. H. Foster and A. Jones were elected members of this Association. A vote of thanks to the Chairman terminated the proceedings.

(Signed) C. HALL, *Chairman.*
(„) J. C. ABBOTT, *Hon. Secy.*

CENTRAL TRAVANCORE.

A COMMITTEE MEETING of this Association was held at the Penshurst Bungalow, at 9 A.M., on Saturday, the 9th July, 1898.

PRESENT:—Messrs. F. M. Parker (*Chairman*), A. E Veale (*Honorary Secretary, Medical Fund*), H. M. Knight, B. Laurie, R. H. Goldie, and H. W. Baker (*Honorary Secretary*).

Medical Fund.—Mr. H. M. Knight (proxy for Mr. R. S. Imray), in introducing this subject, expressed his dissatisfaction with regard to the medical attendance at the Mount, Munji Mulla and Arnakal estates, and also respecting the insufficient supply of medicines during the last few weeks. In reply, the Medical Fund Secretary explained that the short supply of medicines was entirely owing to the unexpected increase in the number of cases of sickness on those estates during the last few weeks, and in consequence of which the usu supply was insufficient to meet the demand.

After a long discussion, it was resolved to refer all other matte relating to the fund to the General Meeting.

Read letter from District Magistrate and Superintendent of t Cardamom Hills, with reference to the proposed sale of the Pala buildings on Peermaad, and it was resolved that owing to the site and general plan of the buildings already erected that they were n of such a nature that they could be made available for esta purposes. Members interested in or wishing to offer for same we therefore requested to communicate direct with the Superintende and Magistrate of the Cardamom Hills.

Read correspondence from Secretary, U.P.A.S.I., and approve With a vote of thanks to Chairman, the meeting closed.

PEERMAAD, H. W. BAKER,
15*th July*, 1898. *Hony. Secy., C.T.P.*

A General Meeting of this Association was held at th Penshurst Bungalow, at 10 A.M., on Saturday, the 9th Jul when there were present:—

Messrs. F. Bissett, R. H. Cole, D. H. Deane, R. H. Goldi C. N. Grimshaw, H. Holder, H. M. Knight, L. G. Knigh B. Laurie, W. H. Leahy, F. M. Parker (*Chairman*), A. Veale, H. W. Baker (*Honorary Secretary*), R. S. Imray *proxy*, and E. Latte as *visitor*.

1. *Proposed* by Mr. A. E. Veale, and *seconded* Mr. H. M. Knigh that the Secretary be directed to communicate with the Chi Engineer, drawing his attention to the very dilapidated and unsa condition of the ferry "jungars" at the Periar river crossing ar the urgent need of repairs to same. *Carried.*

2. *Proposed* by Mr. D. Deane, *seconded* by Mr. B. Laurie, that th condition of the bridge at the 18th mile and the road between th 8th and 10th miles on the Kottayam-Peermaad road be broug to the urgent notice of the Exec. Engineer, Northern Division, they seriously interfere with the traffic on the road. *Carried.*

3. *Proposed* by Mr. Holder, and *seconded* by Mr. Bissett, that th Honorary Secretary do communicate with the Dewan regarding th construction of the bridge across the Pambanar river, and also of minor bridge at the foot of the Granby Hill, on the grant-in-a road from the 50th mile Peermaad road to the Granby Mount an Arnakal estates, and request the grant of the amounts necessary f the construction of the bridges (either thro' the D.P.W. or Associatio and pointing out the necessity for the construction of these bridge owing to the frequent and continued blocking of the traffic, on th grant-in-aid road, on every occasion that rainfall causes the slighte rise in the rivers, to the great inconvenience of all the estates serv by this road. *Carried.*

4. *Proposed* by Mr. H. M. Knight, and *seconded* by Mr. R. H. Co that the Secretary address the President, District Board, Madur calling attention to the state of the road, known as the Kumili gha which is overgrown with jungle in many places, and also to the sta of the bridges on the Kumili ghat. *Carried.*

5. *Proposed* by Mr. Holder, and *seconded* by Mr. Deane, that th present prospects of the tea industry do not justify the maintenan of the Medical Fund on its present financial basis, and that son arrangement should be come to whereby the work can be efficient carried on, but on a more economical expenditure. *Carried.*

6. *Proposed* by the Chairman, and *seconded* by Mr. Laurie, that sub-committee consisting of Messrs. Holder, Goldie, Leahy, Laur Deane, Knight, Medical Fund Secretary and Chairman and Secretar C. T. P. Association, be appointed to settle details as to future mea of carrying on the work, and that Mr. H. M. Knight be requested accept the position of delegate from this Association to wait on th Dewan and confer with him as to what State aid may be count on from H.H's Government for the future in the carrying on this very important and necessary work. *Carried.*

Mr. Knight most kindly undertook to carry out this arrangeme on receipt of all particulars regarding the work of the fund duri the time it has been in existence. A vote of thanks to Mr. Knig for his promised assistance in the matter was unanimously carried

7. *Proposed* by the Chairman, and *seconded* by Mr. Veale, th Mr. H. M. Knight be requested to undertake the duties of delega

this Association at the General Meeting of the U.P.A.S.I. in ngalore in August next. *Carried.*

The Chairman proposed a vote of thanks to the two Honorary retaries for their trouble in preparing for the press the informa- relating to the Association and other local affairs. *Carried.*

Read correspondence with the Secretary, U.P.A.S.I., and circular ices, which met with the general concurrence of the meeting.

Papers laid on the table :—

Proceedings, Nilgiri	Planters' Association,	13th	May,	1898.
Do. Coorg	do.	do.	25th Feb.,	,,
Do. do.	do.	do.	31st May,	,,

Circular letters of the Indian Tea Association.

With a vote of thanks to the Chairman, the meeting closed.

PEERMAAD, H. W. BAKER,
h July, 1898. *Hony. Secy., C.T.P.A.*

ROUND THE BUNGALOW.

NOTES BY "A PLANTER'S WIFE."

make plate powder.

Silver and electro-plated goods should be wet as little as possible. Spoons, forks, etc., must be washed with good soap only. Never soap powders; these are most destructive to the plating. Take pound of best whiting, and one eight-anna packet of rouge powder, th to be had at any chemist's. Put the whiting on a sheet of wn paper on the table, bruise every particle, then sprinkle rouge over. Rub together with a knife till the whole becomes ale pink powder, which in use and appearance cannot be told m the best plate powder. If the silver is tarnished, use a piece damp flannel to apply the powder, but under ordinary circum- nces use dry and polish with leather. Plate may also be kept ght and in good order by the use of plate rags, which are made follows.

ate rags.

Boil soft rags in one pint of milk and one ounce of hart's horn powder for five minutes; them as soon as they are taken out for a moment in cold water, d dry before the fire. They should be used daily to polish plate er washing it.

preserve oranges whole.

Make a syrup of three pounds of sugarcandy in one quart of water; put good and sound oranges into this, and then boil very slowly the liquid is reduced to one-half. Limes may be treated in the me way. When cold and put away in jars, stir in a wineglass- of rum for every pint made. *N.B.*—They will not "keep" long less under lock and key.

Fruit which is to be preserved in syrup must first be blanched or iled gently, until it becomes soft enough to absorb the sugar; d a thin syrup must be poured on it at first, or it will shrivel stead of remaining plump and becoming clear. Thus, if its weight sugar is to be allowed, and boiled to a syrup with a pint of water the pound, only half the weight must be taken at first, and this ust not be boiled with the water more than fifteen or twenty inutes at the commencement of the process; a part of the remain- g sugar must be added every time the syrup is reboiled, unless should be otherwise directed in the receipt.

o make barley sugar.

Boil clarified loaf sugar to crack or caramel, using a little acid to prevent graining; pour out on a garble slab which has been previously led or buttered. This is occasionally flavoured with lemons. hen required pour a few drops of essential oil of lemon in the ntre before the edges are folded over; then cut into narrow rips with a large pair of scissors or shears. When nearly cold vist, put into glasses or tin boxes, and keep closed to prevent e access of air. It is seldom boiled higher than crack, and saffron used to make it the colour of caramel.

arley sugar drops.

Boil sugar as for the preceding. Spread finely powdered and sifted loaf sugar on a table or tea-tray, with a piece of stick round the ends; make several holes, into which run the sugar from a oped pan; or drop on an oiled marble slab with a funnel, letting ly one drop fall at a time; or from the lip pan, separating each op with a small knife or a straight piece of small wire. Take off e stone with a knife, mix with powdered loaf sugar, sift from it, nd keep in glasses or tin boxes.

aking tea.

The best way to make tea is to take a clean earthenware pot, make it thoroughly hot, then place the tea therein, a teaspoonful for each person. The water to be used should boil, then be immediately poured on the tea. If allowed to boil over, the peculiar property of boiling water which acts upon tea evaporates and eventually disappears. The tea should be allowed to draw six minutes and then poured out, as in this way you gain the full flavour, quality, and strength without extracting the tannin, which is so injurious to the digestive organs.

Household Tit-Bits.

Stains of tea or coffee may be removed from linen by being soaked in warm water as soon after they have occurred as possible, and then soaped and rubbed. They will disappear at the next washing. When they have been left for some time, an application of pure glycerine is effective. Lemon and salt also removes stains from the fingers. Do not use soap afterwards.

MARKET REPORT.

COFFEE.

Messrs. R. J. Rouse & Co's Weekly Coffee Report (*July* 8, 1898) says :—

A dull tone prevailed at auctions this week and sellers again found it very difficult to dispose of their coffee and a large proportion had to be bought in.

About 1,000 bags East India were catalogued consisting chiefly of small lots of undesirable kinds which met little demand and only a small part sold.

Costa Rica formed the bulk of the Central American offered and sold slowly at 1/ to 2/ decline, but one or two home trade marks realised previous values.

Futures have been a very quiet market and quotations at the close show practically no change on the week.

Messrs. Wm. Jas. and Hy. Thompson's Report of the Colonial Markets for the Week ending July 6th, 1898, says :—Bank rate 2½°/₀. Bombay Exchange closes at 1s. 3⅛d. Brazil Exchange 7$\frac{13}{32}$d. Rupee paper 3½ °/₀ 62½. Silver 27$\frac{5}{16}$d. per oz.

We have little change to report in this market during the past week, supplies, which have been on a small scale, have met with scarcely any demand, and prices show no material alteration. Fine growths, which are scarce, only meeting with good competition.

Brazil markets continue very quiet.

Daily receipts averaged 6,500 bags in Rio, and 11,200 bags in Santos.

Futures remain dull, and close without change, viz. :—Good average Santos in Havre, September delivery, fcs. 36.00, in Hamburg pf. 29¾, and No. 7 low ordinary Rio in New York $5.70.

To-day's London official quotations are :—

	July	Sept.	Dec., '98.	Mar.	May, '99.
SANTOS ...	28/6	29/3	29/6	30/3	30/6

We quote :—

Ceylon, mid. to good mid.	96/@107/	Costa Rica, mid. to fine...	69/ @105/
Do. small to low mid.	80/ ,, 93/	Do. ord. to low middling.	41/ ,, 65/
East India, mid. to good mid...	75/ ,, 92/	Jamaica, good to fine ord.	32/ ,, 50/
Do. small to low mid.	58/ ,, 73/	Do. greenish to fine colory...	65/ ,, 125/
Guatemala, mid. to fine...	68/ ,, 98/	African ...	26/ ,, 29/
Do. good ord. to low mid...	52/ ,, 67/	Columbian, ordinary ...	34/ ,, 42/
Salvador, good ord. foxy greenish...	37/ ,, 41/	Do. good ord. to low mid...	39/ ,, 59/
		Do. mid. to fine...	62/ ,, 95/

Receipts in Brazil to 6th July compare as follows with previous years :—

	1897-98.	1896-97.	1895-96.
	Bags.	Bags.	Bags.
RIO	34,000	56,000	56,000
SANTOS	69,000	94,000	67,000
	103,000	150,000	123,000

In Sale—

451 bags East India, chiefly cherry dried, chiefly sold	...	45/ @	76/
4,887 bags Costa Rica, part London cleaned, good part sold	...	34/ ,,	90/
986 bags Guatemala ,, ,, partly sold	...	26/6 ,,	83/6
659 bags Nicaragua ,, ,, chiefly sold	...	38 ,,	110/6
277 bags Mexican, ,, ,, partly sold	...	42/6 ,,	45/
215 bags Salvador bought in.			
2,640 bags Columbian, part London cleaned, chiefly sold	...	31/ ,,	82/
38 bags Vera Paz, London cleaned, part sold	...	91/ ,,	—
65 bags Liberian Johore	...	29/ ,,	—
20 bags African Liberian	...	22/ ,,	—
55 packages Mocha bought in.			
56 brls. 157 bags Jamaica, part London cleaned, chiefly sold	...	26/ ,,	57/

On quay terms :—
294 bags washed Rio bought in.

Landed last week ... 928 *tons. Deliveries* ... 767 *tons. Stock*...19,285 *tons.*
Do. last year ... 777 ,, ,, ... 608 ,, ,, ...14,248 ,,

TEA.

Messrs. Gow, Wilson and Stanton's Indian, Ceylon, and Java Tea Report, dated July 8th, 1898, says :—

QUANTITY BROUGHT TO AUCTION IN LONDON
FROM 1ST JUNE TO DATE.

	Indian.	Ceylon.	Java.
1898-1899...	44,329 packages.	132,253 packages.	3,569 packages.
1897-1898...	47,616 ,,	150,142 ,,	5,374 ,,

3,094 *pkgs.* INDIAN
27,577 ,, CEYLON
216 ,, JAVA
} Total 30,887 packages were offered in public auction this week.

Figures showing movements of Tea in London for the month of June as published by the Tea Brokers Association are given below. Deliveries of Indian Tea show an encouraging increase, while imports from India and Ceylon are less than during the corresponding month last year.

Indian. The sale was unusually small only 3,094 packages being brought forward. Of this quantity 691 were New Seasons. The market for all descriptions was firm. The official telegram from Calcutta gives exports to U. K. from the 1st April to the end of June as 11,497,000 lbs., against 9,948,000 lbs. for the corresponding period last season.

Week's avg. of New Season's Tea sold on Garden Account, 1898, 517 pkgs., av. 7·20d. 1897, 11,780 pkgs., av. 7·48d.

	1898.		1897.		1st June to date 1898.		1st June to date 1897.	
	Pkgs.	Price.	Pkgs.	Price.	Pkgs.	Price.	Pkgs.	Price.
Assam ...	58	7·50	2,454	9	2,757	8·80	4,996	8·97
Cachar & Sylhet ...	—	—	2,514	6	312	5·86	3,576	6·20
Chittagong ...	—	—	—	—	—	—	—	—
Chota Nagpore ...	—	—	—	—	—	—	—	—
Darjeeling ...	227	8	2,136	9¼	4,344	8·56	4,713	9·58
Dooars ...	—	—	587	8	1,144	7·31	1,348	8·14
Kangra, &c. ...	—	—	96	6½	100	7	121	6·08
Neilgherry ...	—	—	383	6½	300	7·16	516	6·47
Terai ...	—	—	—	—	391	6	106	8·75
Travancore ...	232	6·47	3,610	6½	4,476	6·31	5,518	6·37

New Season's Tea sold on Garden Account 1st June to date 18
14,851 pkgs., av. 7·50d. 1897, 20,894 pkgs., av. 7·83d.

Comparative prices of Indian Tea in London.

		1898.	1897.	1896.	18
DUST.	(Fair ordinary, dark liquor) ...	3½d	3½d	4½d	4
FANNINGS.	(Red to brown, strong rough liquor) ...	3¾d	4d	5d	4
BROKEN TEA.	(Brownish to blackish, strong liquor) ...	6d	6¼d	7¼d	6
PEK. SOUG.	(Blackish greyish, useful liquor).	6¼d	6¾d	8d	7
PEKOE.	(Greyish to blackish, some tip, useful liquor) ...	7¼d	8½d	9d	8
PEK. SOUG.	(Blackish greyish, inferior liquor).	5¼d	5d	5¾d	5
PEKOE.	(Blackish greyish, some tip, inferior liquor) ...	5½d	5¾d	6½d	6

Ceylon. 27,577 packages were brought to auction against 23,834 l week. With a somewhat heavier supply, the market showed a rath quieter tone. Although the quotations of last week were bar maintained, this was in a great measure due to a slight falling off in quality of offerings, as is frequently the case at this period of the ye The official wire from Colombo gives exports to U. K. for the month June as 9,750,000 lbs., against 11,500,000 lbs. last year, and estimates quantity available for July as 10 to 10½ million lbs. Exports to U. from the 1st January to the end of June are 50,250,000 lbs., agai 54,500,000 lbs. for the same period last season.

Average for the week 7·34d. against 7d. for the same period last year

Ceylon Tea sold on Garden Account 1st Jan. to date 1898, 592,2 pkgs., av. 7·58d. 1897, 578,156 pkgs., av. 7·70d.

Comparative prices of Ceylon Tea in London :—

		1898.	1897.	1896.	18
PEKOE SOUG.	(Ordinary leaf ; fair liquor) ...	6d	6d	6d	6
PEKOE	(Ordinary leaf, little twist ; fair liquor) ...	6¾d	7d	7d	7
PEKOE SOUG.	(Rather bold leaf ; indifferent liquor) ...	5¼d	4¾d	5d	5
PEKOE	(Somewhat bold leaf ; indifferent liquor) ...	5¾d	5¼d	5½d	

Java. The 216 packages were all of direct import and sold with go competition at about previous rates.

Movements of Tea in London (in lbs.) during June.

	Imports.			Deliveries.			Stock.		
	1898.	1897.	1896.	1898.	1897.	1896.	1898.	1897.	1896.
INDIAN	1,350,696	2,092,857	2,077,521	10,371,915	9,018,317	8,587,849	29,133,669	25,309,752	20,240,28
CEYLON	9,776,978	10,709,464	10,158,358	7,599,712	7,868,446	7,333,190	19,407,906	22,794,198	21,382,70
JAVA	248,780	449,470	592,480	280,560	330,400	397,950	665,000	871,290	1,182,23
CHINA, ETC.	528,753	285,547	95,051	2,268,506	2,581,612	2,898,655	10,383,941	10,707,274	16,836,01
TOTAL lbs. ...	11,905,207	13,537,338	12,923,410	20,520,693	19,798,775	19,217,644	59,590,516	59,682,514	59,641,22

PUBLIC SALE OF SOUTH INDIAN TEA.

(AVERAGE FOR ALL INDIA 7·20*d.*) *July 8th.*

GARDEN.	Total.	Average.	Broken Org. Pek. or Flowery Pekoe.		Pekoe and Unassorted.		Broken Pekoe.		Pekoe Souchong.		Broken and Souchong.		Fannings, Dust and Various.	
	Quantity	Price.	Quantity	Price.	Quantity	Price.	Quantity	Price.	Quantity	Price.	Quantity	Price.	Quantity	Price
Travancore ...	**232 p**	**6·47**												
Glenmary ...	78 p	6¼	32	6½7½	16	5¾	...	...	...	...	...	...	40 p	3 6
Glenmore ...	60½c	6	...	...	58½c	6	...	...	...	...	2½c	4¾	...	...
Travancr. T. C. Pan.	94	6¾	44	5¾	...	...	50	7½	...	...	...	...	...	...

Bank Rate 2½ per cent. Exchange on London three months sight :—Calcutta 1/3 1/16. Colombo 1/3 1/16.

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COLONIAL MERCHANTS,

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COFFEE.	DRYSALTERIES.
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COCOA.	JUTE,
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Being in the centre of the Produce Markets, we are able to effect quick sales at the highest market value of the day.

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Our sample book of Commercial Letter Paper shows a wider range of qualities th can be found elsewhere in the local market. All our commercial paper is cut from the f ream, so that our customers pay for the paper only and not for fancy wrappers and labe We claim to offer better value in this line than any other house in the trade.

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PLANTING OPINION.

A WEEKLY JOURNAL

WRITTEN BY PLANTERS FOR PLANTERS.

VOL. III.] COONOOR, SATURDAY, AUGUST 6, 1898. [No. 31.

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SUBSCRIPTION.—Advance Rates: Yearly, Fifteen Rupees; Half-yearly, Eight Rupees; Quarterly, Five Rupees, and Monthly, Two Rupees, including postage. Single Copies, Eight Annas.

ADVERTISEMENTS.—From the 1st October, 1897, the charge for line advertisements will be: 4 as. per line for the first, 3 as. for the second, and 2 as. for the third and succeeding insertions. Five-line advertisements from Subscribers will be inserted for three issues for one rupee; non-Subscribers will be charged two rupees.

DOMESTIC OCCURRENCE.—The fee for inserting a domestic occurrence will be *One Rupee* for each insertion, payable in advance.

N.B.—Remittances should be sent to the Manager, "Planting Opinion," 11/12, Second Line Beach, Madras.

IMPORTANT NOTICE.

The Business Offices of this paper having now been removed to Madras, all remittances should be made payable to the Manager of *Planting Opinion*, 11 and 12, Second Line Beach, Madras, who will also attend to all advertisements, &c.

Letters to the Editor should be addressed to Coonoor, as usual.

SEASON REPORTS.

TO OUR SEASON REPORTERS.

Please post your next reports to reach Madras on Friday, the 12th August, 1898.

Season Reports should be sent to the Printers, Messrs. Addison & Co., direct, and not to *Planting Opinion* Office.

Coorg.

Pollibetta, *3rd August.—Weather.*—Heavy rain from 24th to 29th inclusive, ·90 in. on 24th; 1·25 next day; 1·50 the next; and 1·90 the next. Total for the week nearly 6 inches. Fair weather again since last date named; but some smartish showers on 1st, totalling about ½ an inch. *Plant-diseases.*—Removing bored trees the second time commenced. Leaf-disease not in evidence yet in old coffee, but has shown up in nurseries and supplies. *Labour.*—Canarese beginning to come in. *Health.*—Good.

COMMERCIAL FERTILIZERS.

The representations of the U.P.A.S.I. with respect to the imposition of an Import Duty on Chemical Fertilizers have borne fruit. The Duty is to be removed, and the Government of India is now considering what articles shall be included in the term "Chemical Fertilizers" and admitted into the country free of duty. If the expectations expressed at the last Annual Meeting of the U.P.A.S.I. are fulfilled, this will mean an increase in the employment of fertilizers, followed by an increase of crops. No doubt, there are still some planters of the old school who are averse to spending money in this direction. There are men who point to what was done in their day, *without* manures: how many hundredweights of coffee each acre yielded, and so on. But the majority of planters have come to consider that the question of soil fertility is of primary importance, and that soil which was almost exhausted by their predecessors

cannot be treated in the same manner as was the virgin soil first tickled by the latter's efforts to obtain crops from it. With the question of soil fertility,—that is to say, in regard to any but virgin soil—the question of manuring is closely allied. Experience has shown its necessity. Experience has dictated which classes of manure are most beneficial under certain circumstances. Careful study, as well as practical experiment, has placed definite and accurate knowledge concerning manures at the disposal of the agriculturist, and the functions of fertilizers in relation to soils and crops are now a matter of scientific knowledge. It has come to be understood that to maintain an evenness of fertility a soil must have put into it the ingredients that are taken out of it by the product cultivated. To quote an American writer on the subject :—"This is to a large extent accomplished by feeding the crops grown on the farm to animals, carefully saving the manure and returning it to the soil, and if it is practicable to pursue a system of stock-feeding in which those products of the farm which are comparatively poor in fertilizing constituents are exchanged in the market for feeding stuffs of high fertilizing value, the loss of soil fertility may be reduced to a minimum, or there may be an actual gain in fertility." This kind of manuring is not usually sufficient, however. It has been found that, as a rule, the manure produced on the farm is not sufficient to maintain its fertility. And if the need for artificial manures on farms has thus been proved, how much greater has it been found to be on places like coffee and tea estates, where the produce of the soil is not used as food for cattle, and eventually returned in part to the soil in the form of natural manure. It has been found that artificial fertilizers must be used either to make up the deficiencies of farm or estate manures or in specially intensive cultivation ; but it has also been proved that they give best results when used on soils well stocked with organic matter (humus), for the maintenance of which regular application of the bulky farm manures (including green manures) is essential.

Nitrogen, phosphoric acid, and potash are the constituents most likely to be deficient in soils or most quickly exhausted by the production and removal of crop. The chief aim of artificial manures is, therefore, to return one or more of these constituents to the soil, and the efficiency of a particular manure must largely depend on the proportion of different essentials in it as compared with what is necessary to the refertilization of a particular soil. It would be interesting if planters would make a more general effort than they do at present to discover for themselves what the constituents of local soils are, and how they might best be improved. Tons of valuable manures may be wasted, and thousands of rupees expended, through a misapplication of fertilizers. Planters should not purchase artificial fertilizers until they have recognized the truth that science and experience alike teach. To quote the same authority to which reference has been made already : in order to use these manures profitably, the planter should know : (1) that nitrogen, phosphoric acid and potash are the essential manurial constituents ; (2) that the agricultural value of these constituents depends largely upon their chemical form ; (3) that these forms are contained in specific products of a well-defined character a composition, and may be purchased as such from deal and manufacturers, and may be mixed successfully on estate. The last portion of the above remark is a ve important one. The agricultural value of a fertilizer distinct from its commercial value. Buying a ready-ma compound may sometimes involve payment of a large pr to the compounder. If the ingredients of a patent medic are known, it is usually possible to buy them and mix them a much smaller total cost than the price of the same quant of the medicine under the patentee's label. So it is w artificial manures. But the first, and a necessary, st towards success here is, that the planter should kn exactly what ingredients he requires.

We will not dilate further on the points indicated, b will conclude with the following valuable notes by t authority already cited, viz., Mr. EDWARD B. VOORHEES, M. Director of the New Jersey Agricultural Experime Stations. The variations in the composition and value manufactured fertilizers which contain the three essent constituents are due to variations in the character and the proportion of the materials used. The ton basis alone not a safe guide in the purchase of these commercial fer lizers. Low ton prices mean either low content of go forms of plant food, or the use of poorer forms. Fertilize high grade both in quality and quantity of plant foo cannot be purchased at a low price per ton. The b fertilizers cannot exert their full effect on soils that are dry or too wet, too compact or too porous. They c furnish but one of the conditions of fertility. The ki and amount to use should be determined by the value the crop grown and its power of acquiring food. A defin system or plan should be adopted in their use.

THE LADY-BIRD SCHEME.

(*Contributed.*)

GENERAL and keen regret is felt throughout the planti districts of South India at what some call the initial failu of what is now generally known as "The Lady-bi Scheme." Supported by the foremost planters of the day shrewd, far-sighted men, who discerned in the pest whi the lady-birds were to extirpate an evil to coffee, besi which even leaf-disease is insignificant,—it evoked a go deal of criticism from other quarters. The news of the s called failure of the scheme will doubtless be hailed wi satisfaction by the "I told you so" cult. As a matter fact, the scheme cannot be said to have failed, because t first consignment of lady-birds were from one reason another unable to survive the voyage. That they have be transported safely to even greater distances is a matter common knowledge to students of this new form of warfa upon blights. That initial efforts have failed likewise also notorious. Even Professor Koebele, the great expe in this department, had to confess to failure in his p liminary trials. It may be urged that the large amount money expended has been so far wasted. Not so. It w only have been wasted if planters are so destitute of fo sight, are so timid at this first check, that they give up t whole scheme in despair. This we do not believe for moment that they will do. But to reassure the "weak brethren," it may be well to point out that had Mr. Newpo

not been despatched on his mission, had nothing been done beyond correspondence to investigate the matter, we should not have acquired the valuable knowledge we now have.

Mr. Tryon, Entomologist to the Government of Queensland, has assured Mr. Newport that he would have no difficulty in having further batches of insects collected for him at a very small cost. It was estimated that a £10 note would cover all the expenses to India of a batch of three to four thousand of the desired species of lady-birds.

In conclusion, we would urge that it would be a graceful recognition of Mr. Newport's yeoman services in the matter that his salary for July should be paid him in full. For though his work in connection with the actual importation of the lady-birds ceased with their death at the end of June, the writing of the deeply interesting and valuable report occupied him the best part of the following month.

NOTES.

Oranges in Mexico. In another part of this issue, we publish an extract from the *Indian Agriculturist* on orange cultivation in Mexico, which should be of special interest to planters, now that it has been proved that oranges can be exported to London and meet with a ready and profitable market.

Pruning extraordinary. From a Ceylon contemporary, our planting brothers in the Spicy Island hardly believe in the startling pruning theories started by our old friend, "1874," and the wonderful outturn obtained thereby.

Whilst the method is considered thorough and practicable, an outturn of over 1,600lb. per acre is absurd, and should any garden adopting his method make, say, 500lb. per acre over a period of five years, Mr.—— I mean 1874, should be entitled to a premium of not less than 10% on nett profits.

But, seriously, a man who knows and thinks to launch such a theory—for it is a theory only on an educated body of men—means either he under-estimates the mental calibre of his readers, or the climate of Chota Nagpore generates a "*rot.*"

Adulteration of coffee. From the home papers to hand last mail, we find that the authorities are quite alive to the amount of adulterated coffee sold as the pure article. At Newcastle-upon-Tyne, a dealer was fined 5/- and costs for selling a mixture containing 59% of chicory, and at Bruff, Co. Limerick, a grocer was prosecuted for selling coffee with an admixture of 56·4% of the same matter. In the latter case the summons was dismissed, as the label contained the word "Chicory," but at the same time it is pleasant to know that a campaign is being carried on against the adulteration of our staple commodity, more especially when the consumer only receives less than 50% of the pure article.

A great deal of money has been spent in educating the taste of the B.P. for the appreciation of pure tea, and there is a wide field open to the adventurous and hard-up planter who will take a lecturing tour, and by precept and example show the middle classes that chicory is *not* a *sine quâ non* for the very best brew of the stimulating beverage.

Tea Market in London. A correspondent to a contemporary writes:—

"There does not seem to be much of a tea market nowadays. There are about five large buyers, and they seem to compete with each other as little as possible, so much so that I hear some of the large companies are about to sell in Colombo."

There can be no doubt that, notwithstanding the increase of consumption they have undoubtedly caused, Lipton and Co., Ld., and a few other large retailing houses, have practically closed the London market to general competition, and reduced prices. With their enormous capital they have, in many cases, outsidised the smaller buyers and dealers, and control the market to their own advantage. Whether selling in Calcutta or Colombo would benefit the producer we are very doubtful, for it goes without saying that the directors of these large concerns would very soon realize the position and send out their own buyers.

The only way is for individual planters to try and push sales through their own relations and friends, and create a knowledge of the advantages, both in price and quality, of dealing direct with the planter, or a recognised Indian agency.

Tea advertisements. We all know that Morton Mayer & Co. are endeavouring to force the sale of Indian tea in India, but there seems some vested interests to prevent the expansion of the idea.

A few advertisements on the lines of one culled from an American exchange would in a short time bring the fact that all Western Asiatic requirements in the tea line could be obtained from Hindustan, and a few million pounds very quickly be relieved from the London market:—

Make up your mind to pay more money for tea very soon; the new war tax is 10 cents per pound, and already the markets, both wholesale and retail, are advancing.

If you come or send here quickly you can still buy at old prices.

Vantine's teas are all put up in air-tight pound packages, which preserve the strength and flavour till wanted for use. So you are doubly safe in laying in a considerable supply ahead of the demand.

These are the old prices, and remember that each pound you buy is really worth 10 cents more:

English Breakfast, 40c, 60c, 75c, $1.00, $1.50.	Uncoloured Japan, 40c, 60c, 75c, $1.00.
Formosa Oolong, 40c, 60c, 75c, $1.00, $1.50.	Russian Caravan, $2.00.
Orange Pekoe, $1.00.	India, 40c, 75c.
Young Hyson, 75c, $1.00.	Ceylon, 60c, $1.00, $1.25.

A good way to buy tea, especially if you live in the country, is in our new decorated tea caddies. Each caddy holds twelve one-pound packages, and the prices are less than in single pounds. Caddy free:

12 lbs. 40c tea	$4.32	12lbs. $1.00 tea	$10.80
12 „ 60c tea	6.48	12 „ $1.25 tea	13.50
12 „ 75c tea	8.10	12 „ $1.50 tea	16.20

12 lbs. $2.00 tea for $21.60.

To introduce our Chinese crystallized ginger more extensively, we will, for a short time, sell the 25c-cans cans for 19c.

A. A. VANTINE & CO.,

Largest Chinese, Japanese and India House in the world,

877 and 879, Broadway, N.Y.,

Between 18th and 19th Sts.

A Prize! *The Planter* (Calcutta) offers a prize of two gold-mohurs for an article of one thousand words, proving conclusively, and authoritatively, which is the oldest tea garden actually opened

in India, excluding indigenous areas growing wild. The competition will close on the 31st August, and only *bonâ fide* subscribers to *The Planter* will be allowed to compete. On a cognate subject the Darjiling correspondent of our contemporary writes :—

A few days since there was a discussion at a planter's bungalow regarding the original home of the tea plant. Opinions were divided. A few maintained it was China; the majority that Assam was the original home of the plant. This led me to write my note for *The Planter*. Since then I find that the articles appearing in *The Planter* on "Tea: its Cultivation and Manufacture," bear out the opinions of the majority, where the writer says in the paper of the 16th of July: "The probabilities are that Dharma only became acquainted with the tea-plant and the use of its leaves as a beverage while travelling through Assam and Burma along the range of hills which connect these countries with China. In such case he carried the knowledge gained, and the seeds of the plant, or seedlings, along with him, and added to his saintly character by the diffusion among the Chinese of his knowledge, and of the seeds or plants." I suppose most men will be inclined to receive the above as a fact, but at the same time leave some room for doubt, since the whole matter is so shrouded in mystery—or rather, that there is nothing actually known as to where the plant *originally* came from. To show that, supposing the tea seed was taken from India to China, where the plant deteriorated, the fact of the seed being imported again into India, where it has grown into a large plant with large leaves, and does not appear to be a China plant, but approaches very near the hybrid, of which I can give an example. There is a tea garden in this district on which the bushes are growing now, and giving a good yield of leaf, from the first lot of seed sent up by the Government to the then Superintendent of Darjiling in 1858. Many of these bushes are over six feet in diameter, and would very probably have been twelve to fifteen feet high if they had not been regularly pruned in the winter. I fancy there are a very few tea gardens or plantations which can go so many years back; and not that only, but to be able to point out the plants growing from the tea seed first supplied by the Government. This, I think, goes to prove to a certain extent that the seed has come back to a climate or locality congenial to it, and from which it may have been originally removed.

Blue gum oil and Typhoid fever.

During the present, we hope, temporary epidemic of typhoid fever at Ootacamund, Coonoor and the surrounding neighbourhood, the following extract from a northern contemporary cannot fail to be of interest :—

Some time ago I sang the praises of the Salt Bush as a cure for "usar" or salt soils. I now desire to record the virtues of the Eucalyptus oil in typhoid fevers. The remedy is well-known in Australia; and Maiden, F. L. S., and Curator of the Technological Museum, New South Wales, in his works on the useful plants native to Australia and Tasmania in the chapter on oils, records that a Doctor Kesteven, in two hundred and twenty cases, treated in eighteen months for typhoid fever, had only four deaths: his success was due to the use of Eucalyptus oil. It is a pity that India cannot show the like results. For instance, they have had some fatal cases of typhoid fever in Ootacamund quite lately, and though the b gum abounds, and the oil is common, we do not hear of its use a cure; if given with olive oil it is said to produce astonishing resu more especially if the diet is confined to milk and plantains. So thirty years ago a lady treated her son suffering from typhoid fe to a milk and plantain diet, and he recovered, this was before virtues of blue gum oil were known. As an antiseptic in the tre ment of sores and wounds, it is unrivalled, being three times m powerful in the destruction of bacteria than carbolic acid. It mentioned that an Australian native suffering from a fearful wou over the intestines, and to which a person treated in the ordina manner would have succumbed, was cured by a poultice of Eucaly tus leaves applied by his *gin*. In influenza the inhalation of steam Eucalyptus leaves has cured many; the remedy is also very use in attacks of bronchitis.

In intermittent malarial fevers the oil has been found useful doses of five drops every three hours.

In fact, there are numerous uses to which the oil can be appli with advantage. It may be mentioned that the first plantation Eucalyptus globulus on the Nilgiris was made by General Morg in 1856 from seeds obtained from Australia, and some 150 thousa plants were raised. At the present time there are probably so thousands of acres planted on the Nilgiris with E. globulus. A t at Gaten Park is mentioned in General Morgan's work, "Forestry Southern India," which was planted by General Fred. Cotton, R in 1843. The tree at six feet from the ground in 1870 girth fourteen feet: this under thirty years of age; it is now nearly years' old, and is 20 feet 6 inches at 2 feet from the ground and 16 f at 5 feet. Sixty years is but a small period in the life of a gia gum tree!

The Duty Question.

The following is from the *H. &* which hits on a new line :—

The question whether the consumers of tea need relief from ta tion more than the consumers of tobacco was discussed for so hours in the House of Commons a few days ago. Mr. J. A. Pease to the question in hand, and other advocates of a "free breakfast tabl supported him, Sir William Harcourt showing in the course of t debate that he was inclined to support tea. The Chancellor of t Exchequer claimed to arrive at a vindication of his preference tobacco by calm and judicious reasoning. He had only £1,100,000 dispose of. Each penny in reduction on the tea duty meant a loss the revenue of £980,000. His available funds would, therefore, ha run only to the extent of a reduction of a penny farthing in t pound on tea. He was further influenced in his decision by t consideration that, whilst tea and tobacco stood on the same footin inasmuch as neither were necessaries of life, tobacco had the adva tage of being an industry which, as compared with tea, engaged far larger number of home workers. As regards this last argume presumably Sir Michael Hicks-Beach has studied figures on t subject, but in doing so has left out of calculation tea planters India and Ceylon, who, not possessing votes, are, from an offic point of view, of no account. The argument that, while the smok of tobacco will benefit sensibly by the reduction of duty, tea deale would have been the only class likely to benefit by the reduction tea is plausible, but not convincing. However, the House accept the Chancellor's defence of his own views. The debate has serv to show which way the wind blows, and that the "free breakfa table" programme will not be lost sight of. We are glad to noti that Mr. Rutherford, of the Ceylon Association, is amongst tho who are in favour of the abolition of the tea duty. He spoke plain on this subject at the meeting of the Association on Monday la In view of the fact that it is sometimes advanced as an argume against any further reduction, or the total abolition of the tea du that the leading members of the planting industry are lukewarm the subject, if not entirely opposed to any change, Mr. Rutherfor expression of his views is important.

In continuation of the above, Colonel Filgate spoke ve much to the point at a meeting of the Indian Tea Co., L when he said :—

While urging the necessity for new markets, he called attention the Indian market. He pointed out that it was hard to realise th India consumes on an average 7,000,000lb. of China and Ceylon te all of which has to pay an import duty of 5 per cent. off its valu *plus* cost of carriage to India. Colonel Filgate expressed the opinio

COFFEE SHADE TREE.

Sun-dried Erythrina Lithosperma loppings, &c., contain per ton :—

61·50	lbs.	Nitrogen.
57·38	„	Potash.
14·92	„	Lime.
13·68	„	Phosphoric Acid.

Seed cured under Messrs. Sutton and Sons' advice.

Orders should be booked early for the 1898-1899 crop of seed from the parent trees of above analysis at Rs.6 per pound containing about 2,000 seeds. *Germination guaranteed.*

Only thornless variety extant, and is not procurable anywhere save from the

MANAGER, ARIENKOW ESTATE,
Shencottah.

as others have done, that a large sale of tea in India is possible at a reasonable profit. He mentioned an instance which occurred this last season of tea dust bought in Calcutta at 1½ annas per lb. being sold at Patna at 7½ annas per lb. The directors of the Nedeem Company have strongly urged their managing agents to bring this important subject to the tea industry to the notice of the Tea Association.

LETTERS TO THE EDITOR.

SALTPETRE: A QUERY.

Sir,—In reply to "Chas. H. Oliver," the Kanarese for the above is *cude opoo ;* the Tamil *sora.*

Nilgiris, S. India, 25*th July*, 1898. L. W. Grey.

"SUCKER."

Sir,—Can you, or any of your readers, tell me if the sucker let up from the lower part of a "chick" stump will bear? A friend of mine says not. This is curious, because a sucker let up from the top does certainly give crop, and a good lot, too.

"D."

Balur Estate.

"HINTS ON USING LIME."

Sir,—I shall be obliged if you will be so good as to inform me from what book or paper you took Prof. Person's (U.S.A.) hints on lime, as per *P.O.*, dated 7th May current. I would like to see if there is more about the subject.

Karie Kollie, Mercara, 23*rd July*, 1898. Yours faithfully, A. J. Wright.

[We regret to say we have lost all trace of the source from which we took the extract. Perhaps, some reader who took an interest in the subject may be able to help our correspondent.—Ed.]

MANURING OF ESTATES.

Sir,—In an issue of *P.O.* in February last you had an article on the manuring of estates, and reference to the faith many planters *still* put in with respect to cattle manure. I will now state my experience.

An estate in which I am interested has for years given little over 190lb an acre, and sometimes less. Having the opportunity, I applied cattle manure both in trenches and pits, allowing about ¾ bushel to each plant 4′×4′. This season, the third from the commencement of the treatment, the yield will be about 1,100lb per acre, and no one would know the old wreck of the place it was. Where patches of nothingness were represented, worn-out stumps have rejuvenated, and these worn-out areas are covering the ground with paying growth. From former experience, the only danger I anticipate is, should prices fall, funds run short, and the three-year round system I have adopted be abandoned, the result may be disastrous, but even then the bushes in good heart and high cultivation may carry an estate through, even when *old* bushes have been once thoroughly established.

Planter.

SALTPETRE: A QUERY.

Sir,—With reference to Mr. Chas. H. Oliver's questions in *Planting Opinion* of 23rd instant, to which you ask me to reply, I would say the only native name I know for saltpetre, in either Kanarese or Tamil, is *pottl-uppu.* This, I think, is applied indiscriminately to any and every kind of saltpetre.

Mr. Oliver has seemingly misread my letter in *Planting Opinion* of 16th July. No "right sort of crude saltpetre" was mentioned. There is crude saltpetre pure and simple, that is saltpetre before the salt is educed (made by the A licensee), and refined saltpetre, that is saltpetre after the eduction of the contained salt (made by the B licensee). Mr. Oliver then asks, "How to tell crude saltpetre of the right sort from crude saltpetre of the wrong sort when one sees it?" Crude saltpetre is not unlike the coarse, dirty salt of the bazaars in appearance: refined saltpetre is, in translucent crystal, sometimes rhombohedrons, but usually hexahedral prisms, with di-hedral summits. But Mr. Oliver will never see crude saltpetre anywhere outside a refinery, because, as I have already pointed out, the A licensee is bound to take all the crude saltpetre he makes to a refiner, and its sale to anyone but a B licensee is a criminal offence. *All* saltpetre available to the public is *refined* saltpetre. This latter will vary in purity according to the care expended on the refining process. It may safely be said that no native-made saltpetre is pure. There is a simple test of purity; but as its employment would be illegal, I do not give it.

I trust Mr. Oliver, and other Mysore planters, will subscribe to the projected Co-operative Saltpetre Refinery. If it can be started, subscribers will be able to get saltpetre of far better quality than that ordinarily obtainable, and at a much lower price.

25*th July*, 1898. Toda.

GENERAL ARTICLES.

LADY-BIRDS AND COFFEE.

We call attention to the letter addressed by Mr. Philip to Mr. E. E. Green on this subject. Surely the decision of certain Uva planters to do nothing at this time towards getting the benefit of lady-bird beetles is not well-advised? Mr. Kirby spoke of a levy of 20 cents an acre on coffee; but say that it was only 10 cents, and the collection was confined to 12,000 acres (as it would be difficult to levy on small gardens and acreages), yet, in our opinion, the resulting R1,200 with a similar amount from Government, or R2,400 in all, should suffice to enable Ceylon coffee planters to share in the importation of the anti-bug beetles now expected for the benefit of Mysore, Coorg, &c. We trust neither Mr. Green nor Mr. Kirby will let the matter rest where it is now. With our old staple promising so well this year, it will be a great shame if nothing is done to try and get rid of its chief enemy when so good an opportunity offers.—*C. T.*

"THE PRESERVATION OF MANURE."

A Correspondent sends us the following extract from *Land and Water*:—

"An experiment in the preservation of farmyard manure, carried out by Mr. Shutt, Chemist to the Canadian Agricultural Department, is of interest. A lot of manure, composed of equal quantities of horse and cow manure, was kept in a partially closed shed for a year. In the first instance it weighed 8,000 lbs., and at the end of the year only 2,659 lbs. The reduced bulk was much richer in the elements of fertility than the fresh manure, as it well might be, considering that there was a loss of two-thirds of the original bulk. But, although the percentages of nitrogen, phosphoric acid and potash were greater in the rotten than in the fresh manure, the total quantities were much less. The 8,000 lbs. of fresh manure contained 41·6 lbs. of nitrogen, 24·8 lbs. of phosphoric acid, and 60·8 lbs. of potash, whereas the 2,659 lbs. of rotten manure a year later contained only 23·6 lbs. of nitrogen, 19·5 lbs. of phosphoric acid, and 39·8 lbs. of potash. This is what happens when manure is kept in dunghills for a long time. The loss from dunghills in the open is much more rapid than manure from a shed."

[We thank our correspondent for the extract he has so kindly sent us, but in a country like Southern India, where plantations exist, the improved percentage of fertilizers would make up fully for decrease in bulk. Of course,

if it was on the plains, the decrease in bulk both of "stuff" and fertilizing matter would be of importance, as the cattle shed and manure pit could be located as necessity required, but on the hills similar circumstances do not exist.—ED.]

ABOLITION OF TEA DUTIES.

ADVICES by last mail show that there has been a good deal of writing in the home cases regarding the probable action of the Chancellor of the Exchequer, Sir Michael Hicks-Beach, as to the disposal of his £1,000,000 surplus. Now that he has decided to make "'baccy" cheaper, and maintain the present duty on tea, any discussion on the subject now only relates to the future, when another surplus may be considered a fitting opportunity for making the poor man's breakfast table freer, if not entirely free, of all customs' imposition.

For ourselves we would look somewhat aghast at the abolition, or even abatement, of the present 4*d.* per lb. levied on all classes of tea in England. Our Ceylon contemporaries for the most part seem, if not actually to favour the abolition, at least half-hearted in their condemnation of such a policy, taking as their text that the poorer and middle classes know a good thing when they get it, and will not be imposed upon by a trashy article even if they obtain it cheap.

For ourselves we hardly think that argument holds water: not that we are afraid so much of China's competition—though, at present, with the bolstered rupee, they have a State bonus of nearly 30 per cent.—but that it would lead to an immense quantity of Indian rubbish being thrown on the market and retailed in England at 4*d.* and 5*d.* per lb., and destroying the educated taste for honest sound teas which it has cost many years to build up.

It must be remembered that at present the labouring classes—what with strikes and disputes—are not in the financial clover they were a few years ago, and, though absolutely disliking water, would jump at a dilution of tea.

We have the experience before us of Australian squatters, who, with their means of cooking, for years and years preferred the old "post and rails" tea at 1*s.* 6*d.* to 2*s.* per lb. to the good stuff we were able to supply them at a similar price, and which, for a similar price, would have lasted quantity for quantity double the time.

The same thing will happen with the British workman, whose palate is not of the keenest, and who will not for one moment care about the qualities of his brew if he can get it at between 4*d.* and 6*d.* instead of to 1*s.* 2*d.* as at present, and his needs will induce a lot of hard-up concerns to pander to his requirements, and though undoubtedly it would ruin eventually those who endeavoured to tide over temporary difficulties by cheap plucking and manufacture, a heavy blow would be struck at what has been the rise of Indian planters for the past two decades, viz., the educating of the British public to appreciate an honest tea at a reasonable price to the consumer and a profitable one to the producer.

Another point is not to be neglected, viz., that the Chinese Government is rapidly approaching dissolution, and that in a few years we will have to face the large areas of tea-producing China, not under present conditions, but with British energy, British machinery, without "likin," and on a par with the Indian product. How far it will effect the Indian article it is impossible at present to surmise; but that the present duties make it not only necessary, but impera to maintain a higher grade of produce is unassailable, the reduction of abolition of the duties would encou a lower class tea is manifest, and which would be not retrograde, but injurious, to the tea interest generally.

MANAGING AGENTS' SHORTER CATECHISI

WE make no excuse for extracting the following f the *I. P. G.*, which will be full of interest to those d South who have had a Northern experience and, perh to some of those at present slaving in Travancore :—

What are Managing Agents?
We are the middlemen between the Board of Directors in Lo and the Managers of the Tea Estate.
What is a Board of Directors?
A small body of kindly-disposed elderly gentlemen, who, kno nothing about the working of tea estates, and believin planters are unbusiness-like and unreliable, wisely leave control of the gardens to us.
What is a Tea Estate?
In the eyes of Government, Tea Estates are farms started wealthy philanthropists for the redistribution of population the comfort and happiness of the labouring classes; in the of the Directors they are tea plantations where planters persist, in spite of instructions to the contrary, in growing r Pekoe than Orange Pekoe bushes; but *we* look upon the forming a most reliable and lucrative source of income.
What is a Manager?
He is a planter appointed by the Board to work and look afte gardens, but whose whole time is much better employe supplying us with information and statistics.
What is the chief aim of Managing Agents?
Our chief aim, after taking care of Dowb, is to impress the B with the enormous amount of skilful supervising we brin bear on the Manager.
How is this best accomplished?
By constantly inventing new forms of elaborate statistics t supplied by the Manager, which, republished and sent hom neat typewritten columns, causes the Board to feel how fortu the company is to possess such able and zealous Agents.
What is the great secret of successful management by an Agent
It is to keep the Manager well under control.
Is this easily done?
Yes; it is very simple.
Can you give an example?
Yes; if a Manager in the middle of the season wires us, " Cacharees offering, can I employ?" we do not wire back, "Y or "No."
What do you reply in such a case?
We reply thus: "Estimated expenditure must not be excee but cultivation and efficiency of garden must be maintained

R. J. HARRIS,
6, WORMWOOD STREET,
LONDON, E.C.,
AGENT FOR THE SUPPLY
OF
CHEMICAL MANURES
AND
OTHER PLANTERS' REQUISITES
QUOTATIONS ON APPLICATION.
[Fy.—28-1-99.]

What is the result of this?

The result of this is, that if the Manager employs the Cacharees, we send him a set of statistics to show he is exceeding his estimate; while if he does not employ the Cacharees, we send him another set of statistics to show the cultivation is falling off.

Is it desirable that Managing Agents should understand the working of a Tea Estate?

No; it is most undesirable.

Why?

Because such knowledge would seriously hamper the freedom of our criticising.

Without such knowledge, can the Managing Agents, with confidence, instruct a Manager as to how he is to work his garden?

Yes, certainly; we do so with the greatest confidence.

Do such instructions given at the beginning of a season ever produce a disastrous failure at the end of it?

Yes, frequently.

What do Managing Agents then?

We express to the Board our great disappointment in the Manager; and recommend, reluctantly, that in the interest of the company he be dismissed.

What effect has this system on the Managers?

The effect is distinctly good, for we have every reason to believe that the Manager frequently rises up (from his statistics) and calls us Blessed!

What is a Shareholder?

He is a man of no importance.

THE NILGIRI PLANTERS' ASSOCIATION.

DESPITE a very attractive agenda of thirteen items, the meeting of this Association on Saturday last was very poorly attended, consisting of only Messrs. Edmiston, Windle (*Honorary Secretary*), Cockburn and Groves, the Collector being present as an honorary member, and Mr. Newport to explain the cause of failure of the late consignment of lady-birds.

Mr. Edmiston was called to the chair, and the proceedings of the last meeting were taken as read and confirmed.

The Honorary Secretary read a letter from Mr. Spring, dated 23rd June, requesting the views of the Association on a proposal for making a gauge conversion for the extension of railway communication in Southern India. This, it was said, would link up all the existing metre gauge lines with each other and with the broad gauge of the Madras Railway. The Madras Government supported the scheme, and forwarded it to the Government of India, who, however, desired to have the opinions of all interested in the project, Chambers of Commerce, Planters' Associations, &c., before giving sanction. The meeting resolved to give the proposal hearty support, as the linking up of the various lines would facilitate the transport of planters' produce with the least obstruction *en route*.

The failure of Mr. Newport's consignment of lady-birds was a matter that elicited the sympathy of the meeting for him. It was felt that the result was in no way attributable to any want of care and attention on his part, but to have been caused by the boxes of insects having been entrusted to the steamer's refrigerator on the way out, and, perhaps, to the length of the voyage. Mr. Newport was asked a few questions, and the meeting then resolved to leave the question of future experiments for decision to the U.P.A.S.I. and to such information as may hereafter be obtained on this subject.

The Honorary Secretary next referred to proposals received for obtaining the services of the Agricultural Chemist. That by the Mysore Durbar did not seem to meet with the approval of the Association, while the gentleman got out by Messrs. Stanes & Co. did not fulfil the requirements of a planters' report. The gentleman who has joined that firm is quite prepared to undertake soil analyses as soon as his apparatus comes to hand, but could not immediately state at what cost. It was felt that a planters' chemist is required, and this subject also, it was finally determined, to leave to the discretion of the U.P.A.S.I.

A letter from the Director of Nilgiri Cinchona Plantations was read that gave the results of the working of the bark tendered at Nedduvattum for manufacture of quinine. The 108,934 pounds received yielded from 3·29 to 6·40 units, and is considered satisfactory from a Government point of view. It would seem to be equally so from a planter's point of view and to show the better class of plant is now cultivated.

The N.P.A. sent a copy of their memorial to the Government of India respecting the free encashment of currency notes all over the planting districts of Southern India. The Association approved of the memorial. In the course of the discussion Mr. Newport, who was at the Shevaroys in the early part of the last month, mentioned the difficulties there experienced. He knew of a 100-rupee note that was hawked about the bazaars, and could not be cashed even at a discount.

The Honorary Secretary reported that the currency question was at present before the U.P.A., that he had received a copy of Mr. Ackworth's evidence given before the Commission sitting in London, but which, being marked confidential, he could not read to the meeting, and that the Hon'ble Mr. Hodgson's evidence, before the same body, was not accepted. Incidentally an allusion was made to what this latter gentleman had said on the same subject in Ceylon, but which he said need not be referred to in detail, as it has already appeared in the newspapers, and upon this the meeting resolved to allow the matter to be disposed of at Bangalore. He also stated that he had obtained no satisfaction whatever from the Postmaster-General regarding the disappearance of valuable enclosures posted at Kotagiri. He thought the registration of letters with enclosures insisted upon by the department was an intolerable nuisance and an unnecessary expense, as letters with enclosures, that were not notes or cheques, did not fail to reach their destination. The Postmaster-General was most anxious, he said, to do something, but, so far, he had not traced a single reported case, and had not explained the disappearance of cheques missing.

He next informed the meeting that as the Nilgiri Planters' Association had contributed Rs.672 to the funds of the N.P.A. they were entitled to 67 votes, and this was duly recorded.

The agenda had now reached item XII., and the Honorary Secretary's proposal for an alteration of Sec. 56 of the Forest Act. He urged that this section imposed a hardship on a respectable European in possession of forest produce in requiring him to prove the *bonâ fides* of such possession, failing which a criminal charge could be framed against him. The members present seemed not prepared to discuss the subject, and hence it was relegated to the N.P.A., where the mover promised to urge it.

Mr. Edmiston, at the conclusion of the regular business, asked permission to bring forward a matter that so far was only personal, but which might be within the experience of others besides himself. This was the refusal of the P. and O. Company at Bombay to accept a consignment of tea from him because another estate had put on board a broken chest which showed the contents to be mildewed. He denounced this action of the Company as highhanded and unreasonable, and proposed bringing the matter forward at Bangalore before the U.P.A., but mentioned it on this occasion to secure the goodwill of the Association for his action.—*N. N.*

JAMAICA GINGER.

MR. F. B. KILNER, a resident of Jamaica, has contributed to an American pharmaceutical paper an interesting account of the ginger industry as practised in that island. He tells us that between 25,000 and 50,000 of the Jamaica population depend for their living upon the ginger-crop. The ginger is of two kinds—"blue" and "yellow"—but the plants are botanically indistinguishable; the "yellow" is the better root, being brittle, and more pungent than the "blue", which is tough and fibrous. These, again, are subdivided into "plant" and "ratoon" ginger—the former is ginger planted each season, and the latter is a return crop secured by leaving a part of the rhizome in the ground at the harvest time. Ginger is planted in March and April. Pieces of the rhizome, each with an "eye", are planted. Few planters have settled farms; they clear a piece of the forest, burn the weeds, and plough the soil a little, then do the planting. When once in the ground the plant appears to require little attention, except that it must be well watered, and as there is an abundant rainfall in Jamaica, no labour in this direction is required. Attempts are rarely made to fertilise the plant, manure being scarce in Jamaica, as there are no stables. The most that is done is to plough in the weeds and cover the ground with banana waste. As an experiment, watering the beds with sea-water and sea-weeds has yielded good results; but the average planter is quite indifferent to scientific cultivation, and this is bad for him, because the soil is impoverished by a few ginger-crops, and "dried-up streams, general barrenness—in fact, a

wilderness—marks the progress of ginger-culture." The deep-black soil of the virgin forest is where the best quality is produced, and to grow ginger under this condition involves the destruction of large areas of woodlands by fire. This burning is considered of great importance, as potash and other mineral matters contained in the ashes are deposited to sweeten the ground, while the fire also destroys insect pests. In consequence of the many thousands of acres of land destroyed and abandoned in this manner in Jamaica, the local Agricultural Society has been at work since 1895 on worn-out land, and with the aid of suitable artificial manures have had very encouraging results in reclaiming the land. The Society is extending its operations by securing larger plots and giving aid to planters by furnishing manures, &c. The "ginger season," or harvest, is from March to January. When the stalk withers and the bloom has departed, the rhizomes are twisted out of the ground with a fork, an operation which takes long practice to become expert in. After the soil and fibrous roots have been removed, the rootstalk is thrown into water, when it is ready for the peeling operation. "Peeling-matches," in which the planter gets all his friends to join, are a time of much merry-making in the sable community. The peeling is mostly done by experts with the aid of a simple knife. So far peeling-machinery has been a complete failure. The operation is an all-important one, as may be seen from examination of a transverse section of ginger. First there is an outer striated skin, under which are numerous layers of thin-walled cork cells. The oil contained in these cells in fresh specimens is very pungent, exceedingly aromatic, and almost colourless. As this corky layer contains the greatest amount of oil and resin cells, the deeper the peeling is made so much more of these substances are carried away with the epidermis. When peeled, the roots are thrown into water and washed; the purer the water the whiter is the product. Sometimes lime-juice is used in the wash-water, which gives a whiter root, but as the lime-juice contains saccharine matter and pectose, it prevents drying, and mildew follows. After washing, the rhizomes are dried in the sun, and in from six to eight days they become thoroughly dry. At sunrise the ginger is put out upon a barbecue (platform of stone or concrete) turned over at mid-day and take in at sunset. The average loss of weight by drying is nearly 70 per cent. Experiments have been made with calcium chloride as a drying agent, but the result was not equal to the native method, and the same may also be said of American fruit evaporators in which wood is used as the source of heat. It has been asserted that it is a common practice to bleach ginger with the fumes of chlorine of sulphurous acid, but Mr. Kilner states that no instance of it is known in Jamaica as the planters are unintelligent, and are opposed through prejudice to innovations. Mr. Kilner tried chlorine gas as a bleaching-agent, but the product was of a dirty yellow colour. When the crop is fully dried it is carried mostly by women to the place of sale, which may be from five to forty miles distant. Here it is sold by the "heap," not by measure or weight. A "heap" of ginger varies considerably, according to the law of supply and demand. If the "hands" are finely shaped and large, there are fewer in the heap; if small, dark, and snarly, the pile is made larger. Should the price of ginger in London or New York advance it is because the heaps in Jamaica have been diminished, and should the price go down the heaps have become larger. The exporter of ginger assort the produce into four or five grades, the highest being the large-sized hands of light and uniform colour, the lowest being the ratoon finger sorts, which are small, soft, and lacking flavour. Some of the hands weigh as much as 8 oz. The amount of ginger exported from the island during the last ten years was as follows:—

	lbs.
1887	1,121,827
1888	1,141,877
1889	1,002,653
1890 (half-year)	554,193
1891	1,219,197
1892	1,822,531
1893	1,526,884
1894	1,673,384
1895	1,736,460
1896	1,960,609

Half of this goes to the United States. An average crop ma estimated at from 1,000 to 1,500 lb., dried ginger per acre, a some cases 2,000 lb. As already mentioned, the Jamaica Ag tural Society is improving the methods of cultivation by fert tion, and from information recently to hand it is predicted tha crop now about to be gathered will probably be a record one, p due to an abundant rainfall. This will mean lower prices fo ginger-planter.—*The Planter.*

ORANGE CULTIVATION IN MEXICO.

It is generally supposed that the Spaniards introduced several v ties of fruit trees into Mexico, among them perhaps the sweet ora but the traveller in that country, after seeing the numerous fo of wild oranges, inclines to the theory that the ancients knew of fruit, and that perhaps it was cultivated before the time of Co However, works treating on the history of old or ancient Mexic not describe oranges; yet it is to be presumed that the existing stock, found generally in obscure and inaccessible regions o tropics, was placed there originally by the hand of man, and Na spread it widely, but gradually changed it from a sweet to a sou bitter orange. The United States Consul-General in the ci Mexico says that the Mexican orange comes under the fa Aurantiacea, genus citrus. Although fifty varieties are know exist, there are but three kinds of oranges found in the market o country, classified as follows:—The sweet orange, "naranja dul the Chinese orange "naranja de China;" and the sour ora "naranja de agria." The "naranja de China" is a small fru little over two inches in diameter, spherical, slightly depresse the apex, deep yellow in colour, thin, with minute oil cells, and delicious; its tree is somewhat dwarfish, having small leaves, one to one inch and-a-half long, and resembling those of the my The sour orange has a roughish, rind, rather thick, acrid, b pulp, and is generally large in size; its tree is large, ha a hard wood, and in many places develops a trunk of g dimension; the leaves are of a brilliant, agreeable green co aromatic, lanceolated, and with a broadly-winged petiole. sweet orange could be greatly improved and much could be complished with it by careful selection in its propagation- instance, selecting shoots, cuttings, or seeds from trees, or budd or grafting with sound stock from California and Florida. T are few countries that possess the natural advantages which tropical and tropical Mexico enjoys, and hardly any are gifted v the immense proportion of territory comprising two-thirds of Republic, suitable for orange culture. The greatest producing most important districts, having easy means of transportation La Barca, Ocotlan, and Guadalajara, in the state of Jalisco; Yaut Morelos, Linares and Montemorelos, Nurvo Leon; Rio Verde San Antonio, San Luis Potosi, Guaymas and Hermosello, San Jula, Tamaulipas, and Coatepec and Cordoba, Veracruz. In Mo morelos and Linares, during the last three years, more than 50 trees have been planted with several hundred grafted and bud with California and Florida stock. The Mexican people relish fruit, and especially on the occasion of the holydays—All Saints' and the Posasdas—vast quantities of it are brought into the princ cities for home consumption. Mexico city alone consumes annu more than 300 cart-loads of sweet, Chinese, and sour oranges, w Puebla consumes 70 and Guadalajara 30 cart-loads. As regards by-products of the Mexican orange, the leaves (*hojar*) are used for tea of the Indians and of the poor, and in large cities, where they sold in the streets and in the markets in small bunches for one h penny each, are consumed in large quantities. They are conside the best remedy for insomnia and restlessness, and are hig commended for children. A wine is manufactured from the re oranges, purchased at about one shilling a hundred in Cuan Morelas, and Guadalajara, which retails at two shilligns a bot There are other valuable products which could be obtained, such distilled water of the blossoms, used for toilet purposes, worth ab 19*s.* a gallon; citric acid from the pulp of the sour oranges; oil fr the leaves and rind; and the essential oils from the blossoms, lea and unripe fruit. Mexican growers propagate the orange from s but it can be reproduced more advantageously by budding, grafti

MILLIE & REDMOND, late P. THOMPSON & CO., *Ootacamund, Engineers and Contractors.*

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CALICUT PRICE LIST
OF
ESTATE REQUISITES.

N.B.—We are prepared to indent home for any and all kinds of estate requirements not kept in stock or enumerated in this list.

ESTATE TOOLS—	Rs.	A.	P.
Round Eye Felling Axes (steel), 4 lbs. weight per doz. ...	20	4	0
Do. do. do. 2½ „ „ „ ...			
Pick Axes, 6½ lbs. (well steeled) ... ... „ ...	16	8	0
Bill Hooks, (Barcutties) 12″ blade, bright steel „ ...	18	0	0
Do. Kentish, with back, steel, 2¼ lbs. wt. „ ...			
Bushel Measures (Galvanized), Imperial Stnd. ...each ...	15	0	0
Buckets (Galvanized), various sizes ... from per doz. ...	16	8	0
Watering Cans, (Galvanized) "Nonsuch," 2 gals. each...	4	0	0
Do. do. do. 2½ „ ...	4	8	0
Steel Digging Forks. *Steel strapped all along handle.*			
4 & 3 pronged per doz. Rs. 39-0-0 &	33	0	0
Grass Knives, socket handle, steel ... per doz. ...	12	12	0
Hammers, 6, 7, & 8 lbs. ... ... per lb. ...	0	6	0
Handles, Pickaxe, 3 ft. long (English Ash) ... each ...	0	12	0
Do. 30″ long 3¾″ circ. (do) ... „ ...	0	6	0
Do. 16″ „ 3″ „ (do) ... „ ...	0	4	0
Do. Digging Fork ... ... „ ...	0	14	0
Lining Ropes, abt. 250 feet ... ... „ ...	8	12	0
Mamooties, Steel 10″x 8″ or 9″x 7″ abt. 4 lbs. wt. per doz. ...	12	12	0
Do. Iron 10½ x 8½ or 9½ x 8 abt. 4 lbs. wt. „ ...	7	8	0
Quintanies, Steel 15″ × 6,″ 5½ lbs. weight ... „ ...	18	0	0
Do. 9½″ x 5,″ 3¼ „ „ ... „ ...			
Manure Pans, (Galvd.) 7″ deep x 18″ top x 10″ bottom „ ...	23	4	0
Pitting Bars (Alavangoes), well-steeled points, 3″ spade end, 45″ long, 9 lbs. wt.„ ...	16	8	0
Pruning Knives, English make, best steel, 4″ blade „ ...	9	0	0
Do. Saws, do. do. 14″ „ ...	18	0	0
Seamless Bags (for coffee transport to coast) 42″ x 20″ „ ...	9	12	0
Shovels, round nose, T handle ... ... „ ...	12	12	0
Tea Transplanting Spades, steel, sharp edge ... each ...			
Tea Sieves, brass No. 6, 8, 9, 10, 12 mesh „ ...	6	0	0
Do. do. bottoms do. „ ...	3	8	0

TEA REQUISITES—FOR PACKING.

CHESTS—MADE TO ORDER. *Deld. at Mettapollium, Palghat, Calicut.*			
Full Chests 24 x 19 x 19 (outside) ½ in. planks each ...	1	1	0
Half do 16 x 16 x 16 („) do „ ...	0	13	3
Quarter do 14 x 12 x 10 („) ⅜ do „ ...	0	9	3

Any other dimensions at proportionate prices.

LEAD—BEST INCORRODIBLE. *Any other sizes obtained to order.*			
127 sheets 37″ x 22″ ... ... per case of 2 cwt.	32	0	0
or 218 „ 25″ x 19″ ... ... „ ...	32	0	0
„ { 40 „ 84″ x 22″ for sides / 80 „ 21″ x 16″ „ tops and bottoms } „ ...	30	0	0
„ { 72 „ 65″ x 19″ „ sides / 144 „ 14″ x 14″ „ tops and bottoms } „ ...	30	0	0
Solder (Sticks) per case of 1 cwt. Rs. 50, or per lb. ...	0	8	0
Soldering Fluid ... ... per bottle ...	2	0	0
Hoop Steel ½″ (abt. 3,000 feet to the cwt.)... per cwt. ...	15	0	0

COFFEE PULPERS—*To order only. One month required for delivery.*

For Arabica. For Liberian. Agents for:—MESSRS. WALKER SONS & Co., LD. *Price list and illustrated catalogue sent on application.*	Rs.	A.	P.
Copper Punched Cylinder cover 4′ x 2′ ... each ...	25	0	0
Do. Disc cover ... ... „ ...	9	0	0
Do. do. for Liberian ... „ ...	12	8	0

COIR MATTING—In rolls of 60 feet long x 3 feet wide.			
Estate, Double, (coffee drying, etc.) Nos. 1 and 2, Rs. 2-8 &	2	4	0
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Continuous Iron. For roofing, etc. In rolls of 100 ft. x 2 ft. 28 G. (per ft., 7 as.) per roll ...			
Corrugated Iron sheets 24 G. 2 ft. wide (English) Lengths 5, 6, 7, 8, 9, 10 ft. / Approx. weight 14, 16, 19, 22, 24, 27 lbs. } per cwt....	10	0	0
Iron Ridging, 6 ft. x 6 inch lap. ... per length ...	1	8	0
Bolts and Nuts, ¼″ x ¾″ ... ... per gross ...	1	14	0
Rivets (*abt. 64 to the lb.*) ... ... per lb. ...	0	4	6
Washers, Iron (*abt. 70 to the lb.*) ... ... „ ...	0	4	6
Do. Lead (*abt. 50 to the lb.*) ... ... „ ...	0	6	0
Screws 2½ in. (*abt. 28 to the lb.*) ... ... „ ...	0	7	0
Lead headed nails 2½ in. (*abt. 20 to the lb.*) „ ...	0	6	0

NAILS—

Cut Rose Nails 1 in. (*abt. 500 to the lb.*) ... per lb. ...	0	3	0
Do. 2½ in. („ 90 „) ... „ ...	0	2	3

Wire Nails, French.

℔ 1 cwt. keg	1″	1½″	2″	2½″	3″	4″
	Rs. 13/12	11/8	11/	10/8	10/	9/8
℔ pound annas	2¾	2½	2¼	2¼	2	1¾
Nails ℔ lb. (*abt.*)	400	200	160	100	80	35

Triangular Barbed Wire Nails.

℔ 1 cwt. keg	1″	1½″	2″	2½″	3″	4″
	Rs. 14/	12/	11/	10/8	10/	9/8
℔ pound annas	2¾	2½	2¼	2¼	2	1¾
Nails ℔ lb. (*abt.*)	500	290	160	110	75	40

ASPHALTE ... ... per ton ...	69	0	0
PORTLAND CEMENT—John Bazely White and Bros. "Whites" Best ℔ barrel of abt. 375 lbs. net ... *Sole Agents for S. Canara, Coory, Malabar, Coimbatore, Travancore.*	11	12	0
COAL TAR, Best ℔ barrel of abt. 4 cwts. gross ...	20	0	0
WINDOW GLASS—per case of 100 sq. ft. (all sound) ...	15	0	0

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layering, and from cuttings. The fruit appears in the latter case in from four to five years. Budding and grafting have to be practised on grown trees. Propagation by cuttings can be effected from both immature and mature growth. In propagating by seed, a well-ventilated place, yet free from cold winds, is selected; the soil must be deep and susceptible of being irrigated. For this process, good vigorous large seeds must be chosen from healthy fruits and best plants. In May the seed beds are made, and in June the seeds, which have previously been kept in earth, are sown 4 inches apart by 8 inches between the rows. The rows can be run with the length of each seed-bed, thereby producing 427 seedlings to the seed-bed. Having soaked the seeds from 12 to 20 hours in lukewarm water, previous to sowing them, the plants should come up in fifteen to twenty days. If the rainy season has not set in, and on dry days during that season, the seed beds are sprinkled every two days, but when the plant has made its appearance, a generous application of water is necessary every day, the amount being decreased as the plant grows. In May the ground is ploughed, cleared of all weeds, and fertilised with cheap manure, having plenty of nitrogenous matter. After the land has been well worked, ditches are run at a distance of about 13 feet apart, and then cross ditches of the same distance. At the intersection of these ditches hole 2 feet deep are made for the reception of the young trees; this will give 245 trees to the acre, which can be decreased on a very rich soil, making the distance 16 feet apart. Great care is taken in transferring the young plants that they are not in any way injured either in leaf or root. A ring (*cajete*) is hoed round each tree, wide enough to admit manure, and in connection with the ditches referred to above, for irrigation purposes. If it does not rain all day following the transplanting, the plants are irrigated, and afterwards so often as they require it Two or three days after, if the earth around the plant has settled, loose soil mixed with leaf mould or manure is issued to make up the loss. When the trees are mature, dead and ill-shaped branches are removed with pruning saw, the round being trimmed with a knife and then tarred over. Wax can be substituted for the tar if the former is not obtainable, and this is done to prevent decay entering into the heart of the tree. Maturity of crop varies very much in Mexico. In Campeachy, Chiapas Oaxca, Guerrero, Atlixo (Puebla) and Yautepec (Moreles) the fruit ripens as early as July and the season lasts until December 1, while in Cordoba and Coa (Veracruz), in Michoacan and Jalisco until September, Rio and Montemorelos following and the Sonora crop comes in about November 10. The yield in Mexico varies very much- climate, proper irrigation, pruning, and cultivation being impo factors in determining the extent of the crops. In Atlixo, Yau and Tacambaro the trees average 860 oranges each, but in Atolc Montemorelos, and Hermosillo, the average yield is from 1,' 2,200 oranges a year. With the advantages of climate and so tree in Mexico should yield from 5,000 to 8,000 oranges. The t not generally subject to any pest, nor is it affected by disease.—*Indian Agriculturist.*

TEA IN CHINA IN 1897-98.

THE latest Consular Report on the China and Japan tea trade that the export of tea in 1897 was nearly 16,000,000 lbs. below t 1896, but the earthquakes in Assam, the appreciation of the r the small output of Foochow teas, and a local combination flood the home markets precipitately, tended to make the seaso unprofitable. Some of the old faults of Foochow teas appear to been eradicated; such as mixing the leaf of the old season with of the new, or introducing an excessive proportion of dust; an native firing of teas is very highly spoken of. But none of the methods of preparing teas appear to have proved a complete su Hand-rolled teas are said to have been a failure, and shade-drie are not well-spoken of except in a few small parcels when quality was excellent and would command very high prices.

DECLINING CULTIVATION.

At present the cultivation of tea is scarcely remunerative. Kien Ning and Yen Ping prefectures rice is said to be taking its In this neighbourhood the sweet potato receives more attentio in remote tea districts curing-houses are being offered for s missionaries. But Oolong Seu-moo, Souchong, and Pan-yon retain, and in some cases improve, their position. The compe for Oolongs, some Souchongs, and Flowery Pekoes is still very nothing like them being produced in India, but the smallness supply is said to be one great cause for the demand, and the de

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might decrease if the supply were largely increased. It is difficult to see how China can regain her position in the tea trade, but more attention to the picking of the leaf and to the cultivation of the shrub are essential. Their position as shareholders in the Tea Improvement Company may, perhaps, excite Cantonese compradores to take a more lively interest in the gardens. When after Canton had held the monopoly of this trade since 1820, part of the tea trade drifted back to Foochow in 1854, in consequence of the Taiping Rebellion, it was through their Cantonese compradores that mercantile houses opened up the trade, and it is through them that the trade is now carried on. By advances of money at high interest to local tea dealers, and by commissions on purchases of teas for their employers, the compradores' profits still continue to exist, though grievously cut down, but they are foreigners in the country, and have not the same interest as natives in its welfare.

Importance of Foreign Trade.

The importance to China of the maintenance of its foreign tea trade is far greater than might be imagined. The consumption of tea in China is restricted even in the provinces which produce it to a small class. Even in Fuhkien, outside of the literary class and merchants, the majority of the people use tea dust of different grades, and in provinces where tea is not grown other leaves take its place. In England, 6 lbs. per head of the entire population is the average consumption. In this province it is probably nearly 3 lbs. per head even among the small fraction of the population who are tea-drinkers. If the foreign export is lost to the country, the result to be looked for is not that those teas which were formerly shipped abroad will be prepared for home consumption, but that much of the land will go out of cultivation, or be devoted to some other crop than tea, and that the condition of the cultivators will be still more impoverished than it is at present. The export now is only one-third of what it was in 1880-81, and it is believed by some of the most experienced foreign residents that the acreage which has already gone out of cultivation for tea is enormous. The outlook for the coming season is not so unfavourable as it has been for years past, as the home markets are not glutted, but large consignments of tea placed rapidly upon the market would soon reproduce the disadvantages under which the Foochow tea trade has long laboured and the need of combination to restrict shipments is manifest.

Review of Business in 1897.

The tea market for season 1897-98 opened on May 24, which was about the usual date for the commencement of business. In exceptional years the opening has been delayed by the wide differences of ideas as to prices between buyer and seller, but this season there was nothing to stand in the way of an early agreement being come to. The tea-men had bought their teas at very low prices in the country, and the foreign buyer had a lower sterling exchange of nearly 10 per cent. as compared with the previous year, wherewith to reckon the laying-down cost of his purchases, so that a scale of prices, satisfactory to both, was arranged without difficulty. A fortnight later the steamer *Glengyle* left with 2,338,000 lbs. It was thought that this was rather a large quantity to forward in one bottom in the face of the diminished deliveries of China tea in London, and merchants, by way of giving some protection to their first shipments, addressed a memorandum to the agents of the Conference line of steamers, asking that after the departure of the *Glengyle* there might be an interval of a week between the departure of each subsequent steamer calling to load, and that no steamer should carry away over 1,000 tons of tea from this port. This was agreed to. The weekly purchases from that time were smaller, and comparatively light shipments were made at intervals until the season came to a close in January. A similar agreement was entered into between shippers to Australia (where also the deliveries of China teas were falling off apace) and the Australian steamship companies; departures at stated intervals were arranged, and a limit of quantity to be taken by each steamer was fixed at 1,000 tons for the first two, and afterwards 700 tons for each.

Quality of Crop.

The quality of the crop was no better than last season's yield, except in the case of Congous from the Panyong district, which were superior in the cup if not in make of leaf. A feature of the season was the absence of teas of "finest" quality, and the very limited supply of "common." The Souchong crop was poor in quality as compared with last season. The Oolongs were, on the whole, superior, especially in the "choice" lines. Practically, there were no "common Oolongs" brought down, owing to the restrictions placed upon quality in the United States, of which the tea-men had been given early notice. The few thousand packages that found their way to this market remain in stock, and are likely to remain so: not that the teas are very low in quality, but the line is drawn at rather a high standard in the States. The prices paid at the opening of the market—that is tael prices—were rather lower by half a tael per picul on the average than at the opening of last season, but the sterling exchange was 2*s.* 0¼*d.* per dollar against 2*s.* 2¾*d.* for four months' sight credits. In July, when the reported shortness of the crop began to become apparent, and the exchange began to fall, the tea-men stood out for an advance in price and obtained it. From this date prices continued to harden as exchange continued to fall until the early days of September, by which time exchange had dropped to 1*s.* 9¾*d.*, when the accumulated advance in tael prices was shown to be 2 taels per picul from the lowest point.

Supplies.

The falling off of supplies is shown as follows:—In Congou, 30 per cent.; in Souchong, 18½ per cent.; in scented tea, 14 per cent. An increase is shown in Oolong of 25 per cent., and in flavour Pekoe of 6 per cent.; the total decrease in the aggregate of all kinds was 22 per cent. As regards the future of supplies, there is every reason to anticipate that they will be smaller each year, for what with the heavy export duty and likin, amounting to 30 per cent., and the profit taken by the tea-men or middlemen, through foreigners being excluded from the interior, there is little or nothing left for the unfortunate grower.—*The Planter.*

ROUND THE BUNGALOW.

In no position in life is the art of domestic economy of greater importance than in the household arrangements of the average planter, whether married or bachelor. In our community it is certainly not exceptional to find members brought up in the comforts of life, not to speak of its luxuries, who have to cut their coat according to their cloth, and realize that necessity of using judiciously whatever material they have in hand, whether it is food, clothing or money.

That there is a great deal of waste in many planters' bungalows must be often noticed. Economy is not necessarily stinginess, but instead of allowing odds and ends to accumulate or go to waste; it behoves planters, and their wives especially, to see that these small items are utilized for the best. In my own experience I have often seen a couple or two of nice beef-steaks thrown to the dogs, which, if economy had been studied, would have added not a little to the change of ménu so often desired by the tired planter, and would have helped to turn out some dainty dish which would whet the appetite for stronger nourishment.

Bouillon. The common soup of France, is a dish peculiarly adapted to a planter's bill of fare, and to manage this successfully a stock-pot is required. But a close-fitting saucepan can be used. Place three pounds of beef with two quarts of water in the stock-pot and put on to a *slow* fire till it gradually becomes hot. By this means the fibre of the meat is enlarged, the gelatinous substance dissolved, and the most savoury part of the meat is diffused in the broth, thus forming a nutritious soup and a dish of tender meat. Add half an ounce of salt to every quart of water, three or four turnips and carrots, a head of celery, onions stuck with cloves, a teaspoonful of pepper corns, and a bunch of savoury herbs. It will require about five hours to boil.

The two following receipts are very useful in using up cold meat, and will be found economical as well as tasty :—

Forced cabbage. Take a fresh cabbage, wash well in cold water and drain. Take out the heart or centre of it, leaving a circle of leaves standing. Cut off the stalk, but not so close as to cause the cabbage to fall apart. Have ready plenty of force meat made of minced cold meat, a little potted ham, greated bread crumbs, sufficient butter to soften the whole, powdered spice, grated lemon peel, and two hard-boiled yolks of egg crumbled fine. Fill the cabbage full with this, and, to keep it in shape, tie firmly round in several places with twine in the form of a round ball. Put into a stew pot with enough water to cover it well, and boil till thoroughly done. Serve with brown sauce.

Fritters. Take some thin slices of cold roast meat and trim them in a circular form. Beat with a rolling pin to make them tender and season with a little salt, pepper, powdered nutmeg, and some fresh-grated lemon peel. Beat four eggs, and gradually stir in one pint of milk in turn with half pint of flour. Have ready a frying pan nearly full of boiling ghee

or lard. Drop into it two large spoons of butter, then put in a slice of the meat, and cover it with two more spoonfuls of the butter. As the fritters are fried, take them off with perforated skimmer and drain them.

To remedy sour wine. The souring of wine is produced by various circumstances,—sometimes from its having been kept in a warm cellar, where it has been exposed to draughts of air, often by the vibration caused by the rolling of heavy bodies over the cellar; but most frequently it originates from the wine having been imperfectly fermented. The only safe remedy for the souring of wine is the cautious addition of a little tartrate of potash; it may also be mixed with a larger quantity of rich wine of its kind, at the same time adding a little good brandy. Wine treated in this way should be fined after having stood two or three weeks, and then immediately bottled and consumed as soon as possible, for it will never prove a good-keeping wine.—*Dicks.*

WHEN YOU CANNOT SLEEP.

So far as outside matters go, a man can sleep almost anywhere. Habit settles it. A sailor sleeps in the forecastle of a tumbling ship, and a soldier alongside of a big gun in a bombardment. One of the best night's sleep I ever had was in the open air on a prairie in Western America, the grass for a bed, a blanket for a pillow, and my horse for company—the only living thing within fifty miles of me. But, pshaw! that was luxury compared with some situations in which men sleep sound as bricks in a wall. Habit does it as we said.

Hence, Mr. Fred Downs' loss of sleep had nothing to do with his being a commercial traveller. Commonly, these useful gentlemen can sleep wherever night overtakes them—in hotels or in trains, in quiet country towns, or in the midst of a racket fit to drive anybody else fairly wild.

No, it was not outside, but inside matters that kept Mr. Downs awake. He tells it this way: "In August, 1890, I found myself a way below par, like many stocks and securities. I had no appetite, my stomach was cold and sour, and there was a nasty taste in my mouth that nearly made me sick. I tried eating light and simple food, but I had intense pain after it at the chest and sides, and between the shoulder-blades.

"Instead of sleeping I rolled about the bed all night long. I felt really more tired and weary than a man does after a hard day's work."

[At this point in Mr. Downs' story we beg to insert the remark that the sense of fatigue or exhaustion is the result of a loss of strength; and that it makes no odds at all whether the strength has been used up in labour, or has dwindled away through lack of nourishment. Pump the water out of a cistern, or let it leak out, it's gone just the same.]

"I got very weak," says Mr. Downs, "and had great difficulty in following my business as commercial traveller. I tried medicines right and left, as anybody would, but none of them seemed to hit my case. In this way a year went by. At last I made up my mind to see if your remedy would help me. I had often heard it well spoken of, but never before had occasion to use it. I took it a few weeks and it did me a lot of good. My appetite improved, and my food agreed with me. For this good reason I kept on with it, and was soon as well as ever. It also cured my wife of indigestion from which she had suffered for years. (Signed) Fred Downs, The Rookeries, Bradford Road, Brighouse, Yorks, Dec. 28th, 1893."

Mr. Samuel Dunn had the same trouble. We needn't repeat the general symptoms, as they were identical with those described by Mr. Downs. Alluding to the effect on his nerves, Mr. Dunn says that for eighteen months, dating from the spring of 1885, he did not know what it was to have sound natural sleep. On that, as we might expect, he grew so weak he often had to leave his work for a day or two at a time. He took the usual assortments of drugs and medicines without getting any more good from them than Mr. Downs had done. It was always that way. Medicines don't cure because they *are* medicines; *they must be adapted to an understood disease;* that's the common sense of it.

"Finally," says Mr. Dunn, "I got so low that I felt I must have relief if I was to live much longer. In October, 1886, I began using Mother Seigel's Curative Syrup, and in a few weeks I was well, and have been so ever since. But for the good luck that let me know of the Syrup I might have been dead before this. (Signed) Samuel Dunn, 2, Well-field Street, Mill Lane, Warrington, December 29th, 1893."

We mustn't forget to say that Mr. Downs was cured by the same remedy of the same complaint—indigestion and dyspepsia—and if there is anything on earth that murders sleep as that does, we hav heard of it. If Mother Seigel's Curative Syrup had no other r it would deserve the gratitude of mankind on account of its p (being no narcotic) to seal up aching eyelids and lock weary se in forgetfulness.

MARKET REPORT.

COFFEE.

Messrs. R. J. Rouse & Co's Weekly Coffee Report (July 15, 1898) say A slow market still continues at Public Sales and a large proporti the coffee brought forward had to be bought in, the rest selling at e values.

About 1,100 bags East India were catalogued, but prices were deci lower for the small quantity sold; one or two parcels of cherry however realised very full rates.

Central American kinds also met a very dull demand and the mod supplies of common grades sold cheaply, although here and there a c parcel brought steady prices.

Futures are 6*d.* lower on the week in consequence of the increa Brazilian receipts and rather cheaper cost and freight offers.

Messrs. Wm. Jas. and Hy. Thompson's Report of the Colonial Market the Week ending July 13th, 1898, says :—Bank rate 2½%. Bombay Exch closes at 1s. 3 2/32d. Brazil Exchange 7⅛d. Rupee paper 3½ % 63. S 27¼d. per oz.

This market continues quiet, and little demand is apparent, excep fine desirable growths, which have brought extreme rates. East I and medium kinds are very slow of sale at irregular prices. Plant Ceylon sold well with spirited competition.

Brazil markets steady but quiet.

Daily receipts averaged 7,100 bags in Rio, and 11,100 bags in Santo

Futures have shown a little more firmness, and close 3d to 6d per dearer, viz.:—Good average Santos in Havre, September delivery, 36.25, in Hamburg pf. 29¾, and No. 7 low ordinary Rio in New $5.65.

To-day's London official quotations are :—

	July	Sept.	Dec., '98.	Mar.	May,
SANTOS ...	28/9	29/3	30/-	30/6	30/

We quote :—

Ceylon, mid. to good mid.	96/@107/	Costa Rica, mid. to fine...	69/ @
Do. small to low mid.	80/ „ 93/	Do. ord. to low middling.	41/ „
East India, mid. to good mid...	75/ „ 92/	Jamaica, good to fine ord.	32/ „
Do. small to low mid.	58/ „ 73/	Do. greenish to fine colory...	65/ „
Guatemala, mid. to fine...	68/ „ 98/	African ...	26/ „
Do. good ord. to low mid...	52/ „ 67/	Columbian, ordinary ...	34/ „
Salvador, good ord. foxy greenish...	37/ „ 41/	Do. good ord. to low mid...	39/ „
		Do. mid. to fine...	62/ „

Receipts in Brazil to 13th July compare as follows with prev years:—

	1897-98. Bags.	1896-97. Bags.	1895-96. Bags.
RIO	84,000	135,000	124,000
SANTOS	148,000	217,000	140,000
	232,000	352,000	264,000

In Sale—

71 casks & tierces 24 barrels 9 bags Plantation Ceylon ... 47/ @

45 cases 1,364 bags East India.
- 96 bags Mysore, chiefly sold ... 50/ „
- 391 bags Coorg, chiefly cherry dried, chiefly sold ... 57/ „
- 46 bags Wynaad, partly sold ... — „
- 158 bags Travancore, partly sold. 57/ „
- 45 cases 673 bags Neilgherry, partly sold ... 50/ „

5,692 bags Costa Rica, part London cleaned, good part sold... 35/ „
2,040 bags Guatemala „ „ chiefly sold ... 33/ „
1,014 bags Salvador, chiefly sold ... ... 36/6 „
531 bags Nicaragua, part London cleaned ... ... 21/ „
3,191 bags Columbian „ „ chiefly sold ... 30/6 „
102 bags Bolivian, London cleaned, damaged ... 46/ „
31 bags African Liberian ... ... 20/ „
29 bags Ceylon Liberian bought in.
8 bags Trinidad ... ... 22/6 „
38 bags South Sea Islands bought in.
3 casks 54 brls. 64 bags Jamaica, part London cleaned, partly sold ... ... 32/6 „

Landed last week ... 933 *tons. Deliveries* ... 724 *tons. Stock*...19,494
Do. last year ... 721 „ „ ... 736 „ „ ...14,233

PLANTING OPINION.

A WEEKLY JOURNAL

WRITTEN BY PLANTERS FOR PLANTERS.

VOL. III.] COONOOR, SATURDAY, AUGUST 13, 1898. [No. 32.

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ADVERTISEMENTS.—From the 1st October, 1897, the charge for line advertisements will be: 4 as. per line for the first, 3 as. for the second, and 2 as. for the third and succeeding insertions. Five-line advertisements from Subscribers will be inserted for three issues for one rupee; non-Subscribers will be charged two rupees.

DOMESTIC OCCURRENCE.—The fee for inserting a domestic occurrence will be *One Rupee* for each insertion, payable in advance.

N.B.—Remittances should be sent to the Manager, "Planting Opinion," 11/12, Second Line Beach, Madras.

IMPORTANT NOTICE.

The Business Offices of this paper having now been removed to Madras, all remittances should be made payable to the Manager of *Planting Opinion*, 11 and 12, Second Line Beach, Madras, who will also attend to all advertisements, &c.

Letters to the Editor should be addressed to Coonoor, as usual.

SEASON REPORTS.

TO OUR SEASON REPORTERS.

Please post your next reports to reach Madras on Friday, the 19th August, 1898.

Season Reports should be sent to the Printers, Messrs. Addison & Co., direct, and not to *Planting Opinion* Office.

Coorg.

Polli Betta, 10*th August.*—*Weather.*—The week ending 6th instant was *pucka* monsoonish,—gloomy and rainy, though less rain was gauged than one fancied had fallen. Break since Sunday 7th. No rain yesterday and day before. Total for week not 2 inches. *Plant-diseases.*—Leaf-disease showing up in water-logged patches. Removing and burning borer trees still going on. *Labour.*—Sufficient. *Health.*—Good.

Kotagiri, 11*th August.*—*Rainfall.*—Inches 4·23 in July, bringing rainfall to end of that month up to inches 19·74 against average due inches 22·15. No rain so far in August. It is very dry and windy and out farther east. Kil Kotagiri and Kodanaad way, where rainfall is very short, the drought is telling by reduced tea yield. Coffee trees on the droop, and dropping crop every day and without early rain, it must run light. Basket planting out withstanding dry weather and high wind remarkably well.

THE U.P.A.S.I.

Beginning at 2 p.m. on the 8th instant the planters brought their Annual Meeting at Bangalore to a close soon after noon on the 11th idem. A fairly comprehensive summary of their proceedings appears in our present issue,

but the most interesting part is yet to follow. There was a discussion in Committee on leaf-disease and experimental planting, and we are informed that this will be placed at the disposal of the Press as soon as possible. The work of reporting such a discussion, much of which must necessarily have been of a conversational character, is very great, and no doubt the report will need careful revision at the hands of the Chairman or Committee of the Association before it is laid before the public. We are, however, warranted in saying that Mr. CAMERON, Superintendent of the Mysore Government Gardens, who was present by invitation as a visitor, made some very interesting statements, and that several planters gave more or less detailed accounts of experiments they had made with respect to the hybridisation of Coffee. As regards scale pests and lady-birds, Mr. NEWPORT confirmed his report, lately published. His remarks on what was recently said in these columns with respect to the condition in which his *protegés* reached India were modest. We should like it clearly understood that we impute no shadow of blame to Mr. NEWPORT in regard to his inability to thaw the insects out alive. All we wish to comment on is the fact that failure at any single point of a chain of experimental importation may involve failure of the whole scheme. The Association has acted wisely in deciding to seek further information before trying to import further supplies, and we anticipate that a good deal of information will be forthcoming when inquiries are made in the right quarters. In this connection, we might also suggest that the Association should try to obtain from abroad help and information on other points. New Coffee seed from the West Coast of Africa, or Jamaica, or Abyssinia, or Arabia might be obtained through official channels, and a fillip given to the system of experimental hybridisation to which reference has already been made.

In deciding to seek incorporation under the Indian Companies Act of 1882, the Association aims at the acquisition of a strength and importance that is impossible to an unregistered Association. We wish it success. In discussing "Crop Estimates," the Reduction of Tea Duty in London, "Shipments of Tea per s.s. *Nurani*," Classification of Coffee, the Madras Forest Act (Section 56), and sundry other points, planters showed that they desired to keep well in line with the times. They also gave some indication of the varied character of matters that affect planting interests. Roads and Communications produced some interesting remarks on roads and railroads; and on the subject of finance there was an interesting discussion, practically ending in a very cordial vote of thanks to Mr. G. L. ACWORTH, who has been working like a Trojan at Home to get the views of planters properly represented to the Currency Committee. These are all points of importance, though, naturally, their importance differs considerably. What we would mostly impress upon our readers is this, that the Association is not only trying to do good work, but has done a good deal. A notable illustration of the effect of representations made, and made again, and yet again, to Government, was seen in the announcement made at the meeting that the Goverment of India had admitted that the planters had "made out a case" with respect to the matters investigated by the South of India Planters' Enquiry Committee. It remains to be seen what action will be taken by the Government of India, but we may express the hope that the acclamation with which the above announcement was received may not prove to have been premature. If Governm follows the suggestions of the Committee of Enquiry, c the Labour Law hinted at in the *Madras Mail's* Simla n on the subject is based mainly on the draft submitte Government some time ago on behalf of the U.P.A.S Madras, Mysore, Travancore, Cochin and Coorg Plan will have much to be thankful for.

There remains one important subject to be noticed. discussion as to the need of an Agriculturist Chemis Southern India led to a decision that one was required the Madras Presidency and one for Mysore and Co This was, in the opinion of the Association, the very l that would suffice; and members had evidently come the conclusion that the matter was eminently one in wh Governments should take the lead. How could a n serve but the Madras or the Mysore Government the United Planters Association? What chance wo such a man have of giving satisfaction? Either he wo not know to whom to look for orders, or there would b constant clashing of interests, and he would be require two or more places at one time. We cannot but think there is urgent necessity for the provision of at least Agricultural Chemists in this part of the world, and t while the Mysore and Coorg Administrations might sh the expenses of another, the Madras Government ou certainly to have one entirely under its own cont Planters are willing to assist by paying fees, and U.P.A.S.I. is ready to make an allotment of cash towa the expenses. But the Government should accept the only, and retain absolute control on the movements operations of any scientist it may decide to employ. feel sure that all planters will agree to this. They can afford an expert of their own, and indeed *one* would hav suffice; but they would be only too glad to avail th selves of the services of a local man on any reasona terms. The U.P.A.S.I. has followed this line of thoug and we are certain that under the able guidance of GEORGE ROMILLY, who, we are glad to say, has been elected as Chairman, it will always adopt a policy of c monsense combined with progress and foresight.

RHEA.

IN another column we give an extract from *Ind Gardening* concerning "Rhea," and it now seems reas able to suppose that this easily-grown, profitable, hitherto unmarketable product will take its proper pl amongst the exports from India.

The very fact that a responsible firm should offer £ per ton for 100, and £12 per ton for 1,000 tons open vista of probabilities and profits that makes the mo water, and on the Nilgiris and Wynaad and other porti of the Presidency there will be a more sure prop for plant to depend on than any of the side products propo from time to time to help in times of bad seasons and l prices.

Up till now the process of cleaning the fibre a preparing it for use in European markets has been only obstacle to the spread of the industry. In Wynaad in the early "eighties," Mr. J. W. Minchin, "Glenrock," sufficiently proved that the soil and clim were admirably adapted to the growth of the plant, and

was only that the Death & Ellwood machinery, the most recent and improved at that date, was not able to sufficiently clean the fibre for the London market that interfered with the absolute success of the undertaking. From the financial point of view, Rhea should be a greater success than either tea or coffee, for we learn that in the Straits Settlements 300 sticks will give 12lb. of white degummed filasse, which is the daily produce per acre, and taking 300 working days to the year, this would give, say, 1½ tons per acre per annum, or, say, £18 per acre.

Another point is, the plant is perennial, and after planting out, and having attained a 3-ft. growth, it requires no weeding or cultivation, thinning out being the only field work.

The root is said to survive thirty to forty years.

Another great point is that the leaves of the Rhea plant are very nutritious, and are greedily eaten by cattle—a great boon to planters.

And still another point is, that, after a first area has been put out from seed or bought plants, the plantation can be extended from root cuttings, which is the best method of propagation.

In our issue of November 7th, 1896, in discussing this subject, we had the following extract from the Calcutta *Planter*, which is equally true to-day: "The value of ribbons stripped and dried in the rough is from £16 to £18 per ton in London, and this, even paying for all the extra freight referred to above, pays, and if raised in large quantities would pay handsomely; but £7 to £10, which is sometimes named, will never pay; in fact, would barely cover expenditure." But if, as we understand, the offer of the firm referred to above is likely to be followed by other firms at a similar figure, the objection is obviously overcome.

The absence of preparation and consequent non-necessity for the erection of buildings and machinery will be in favour of the planters, and the cost of which interfered with the success of previous efforts to make the cultivation and preparation of Rhea profitable dispensed with; and with the multitude of uses to which the fibre can be put, we look forward to a long and profitable career for this product, now that the market will accept the fibre, without any skilled preparation, the bark only having to be separated from the stalk.

Great stress is laid on the fact that the fibre must be perfectly dry before packing, so that no injury should be incurred during transit.

The *I.P.G.*, in an article on this subject, sounds a warning note, however, "that the untutored ryot must not be entrusted with Rhea cultivation in the beginning at any rate, as it requires almost as much skilful gardening as tea, and will need the intelligence of the European Planter to place its cultivation on a sound and successful basis."

We trust the warning will be listened to, and that in the rush to be first in the field, an inferior and unmarketable article will not be dispatched to the detriment of the market in its inception, and failure of a source of income, which seems just now open to planters, and at a time when they most need it.

NOTES.

The future of tea. Elsewhere will be found an extract from *Capital* on this subject, which will amply repay perusal. Whilst not entirely agreeing with the hypothesis that a gold standard will cure all our evils, there are arguments which decidedly give food for reflection.

Fruit culture. We extract the following from *Indian Gardening*:—

Kulu Apples at One Anna per Seer!—Under the head of "Fruit Culture in Simla and Kulu" will be found a statement by the Rev. H. F. Beutel (A. C. M. S. Missionary of Kotgar) that he sells Kashmiri apples to the natives at one anna a seer! English, American and Australian fruit-growers should note that one anna is equal to about one penny, and one seer is about two pounds in weight. From six to eight apples go to the seer, or about 16 apples for a penny!

Vanilla. Recently the vanilla bean culture has been introduced into the Seychelles—a group of islands in the Indian Ocean, owned by Great Britain—and from a small beginning it has increased until now it is the principal industry of the colony. There is, says the *Planters' Monthly* (Honolulu), no reason why it should not succeed here as well and become an industry in which Hawaiian women and children may find an agreeable, pleasant occupation and a profitable support.

Para rubber. *Hevea brasiliensis*, the most valuable of the rubber trees. This bids fair to become an important cultivation in Ceylon and other tropical countries (see the last circular of this series). It succeeds best on flat, wet, alluvial soil at very low elevations, but in sheltered positions will thrive at elevations of over 3,000 ft., though the growth is of course much slower; this fact must be borne in mind by any one thinking of opening plantations in Uva, for it means a longer period of waiting for the return.—*Mr. Willis' Circular on the Badulla Gardens.*

A new side product. "Jateorhiza Calumba (*Jateorhiza Palmata*).—This very useful and interesting plant is now flowering freely on the roof of one of the plant-houses in the garden, and forms a very striking object. It is from *Jateorhiza Calumba* that we get the well-known Calumba root of medicinal repute. This drug is greatly esteemed as a bitter tonic, where a stimulant or astringent effect is not required, and is also used in cases of indigestion, and for alleviating vomiting. At one time the plant was supposed to be a native of Ceylon, and the root exported thence to Europe, and so the name Calumba root originated, but the plant has been definitely proved to be a native of Mozambique, where it grows abundantly."

Tea prospects. The *Pioneer* on the 19th ultimo writes as follows:—

In tea shares there has been a strong demand for Central Cachars at 59 and 60, Dehing at 44, and Singell at 80 and 81. The prices obtained at Friday's tea auction were again very satisfactory, and high prices were paid for quality. Prices in most cases were over last year's rates in spite of the adverse exchange, which makes fully 1¼ annas difference. The falling-off in outturn of Cachar and Sylhet gardens is becoming serious, as the gardens do not seem to be making up leeway. The reduction in outturn in this direction helps the other districts considerably, and there ought to be a stronger market for tea when London fully realises the extent of the deficiency in crops. A very encouraging feature is the active demand for Bombay and the Persian Gulf—two markets which have just opened to Indian teas,

but which promise to take off a very large part of what London calls the surplus outturn.

American fruit in Germany.

English and Indian producers and English capital do not receive the same protection as is meted out by the only "William" when competition grows too keen, as will be seen from the following extract from a Calcutta contemporary :—

The German Emperor has done what he considers a good work for the fruit-growers of the Fatherland—he has actually ruined the trade in American apples in Germany. There had been an increasing demand and sale of American apples in Germany. The fruit-growers there became alarmed. They appealed to the Agricultural Department and the Press, and finally to the Emperor himself, who at once determined to give effect to their wishes. The existence of the San Jose scale upon the specimens afforded the desired excuse, and as the result American apples were prohibited from entering German ports.

Rhea again.

Indian Gardening writes :—

It would seem as though a market had at length been found for rhea fibre. This will be good news to those who have long and earnestly advocated the claims of rhea. Mr. D. Hooper, Officiating Reporter on Economic Products, has sent a circular to the Bengal Chamber of Commerce in connection with this subject. He says that he has received a letter from Mr. J. R. Boyle, of the Imperial Institute, London, asking what is the probable amount of rhea produced in India. A new and apparently permanent demand for rhea fibre, he continues, has sprung up in England. One firm has orders in hand to buy up to one hundred tons at £15 per ton, or up to one thousand tons should the price be £12 per ton. Though the consumption at first will be the modest one of from two to three hundred tons per year, it is anticipated that, when the firm is fully at work, upwards of a thousand tons per year will be required. Referring to the conditions in which the fibre must be prepared for shipment, Mr. Hooper states that it need not be prepared by any skilled operation. It will be sufficient to separate the bark from the stalk by the simplest methods, the important point being that the fibre must be perfectly dry before packing, so as to ensure its being pressed light and travelling uninjured. The beginning is a modest one, but if it is followed up there may be great possibilities of a flourishing industry for this country in the cultivation of rhea. We have already written a good deal on the subject of rhea cultivation in this country, and we are among those who believe that the plant is admirably suited to India, and its fibre has a great future before it.

War tax in America.

The *American Grocer* last to hand has another article on the "political puzzle," as it terms it, as to why tea has been taxed and coffee left free. The action of Congress in placing a duty of 10 cents a pound on tea seems to have been a surprise, as the tax was not favoured by either the Committee of the Senate or the Ways and Means Committee of the House. After quoting some figures as to the consumption per head during the Civil War,—which rose from 0·66lb. in 1861 to 1·14lb. in 1871,—the rise in consumption as soon as tea was free of duty to 1·46 and 1·53lb. per head is noted, indicating that the high cost caused by duty cut down consumption. During the Civil War period tea sold for four or five times—in some cases ten times—more than present prices. Tea that brought 75 cents per pound in 1861-65 has sold since as low as 8 cents. "Dollar" tea was the great card with grocers as late as 1885. The addition of a 10-cent duty will not add that sum to the line cost, as part of the tax will be paid by the producers and part taken from the profits of the jobbers. For low-grade tea the consumer may have to pay fully 10 cents more, due quite as much to the standards governing importations as to the tax; but high grades will scarcely feel the duty. However, the *Grocer* concludes that habit is so strong with m people that a 10-cent duty on a favourite article of dr will not prove a barrier to its use.

Importance of Foreign Trade.

"The importance to China of maintenance of its foreign tea tr is far greater than might be imagi The consumption of tea in China is restricted even in provinces which produce it to a small class. Even Fuhkien, outside of the literary class and merchants, majority of the people use tea dust of different grades, a in provinces where tea is not grown other leaves take place. In England, 6lb. per head of the entire populat is the average consumption. In this province it is proba nearly 3lb. per head even among the small fraction of population who are tea-drinkers. If the foreign expor lost to the country, the result to be looked for is not t those teas which were formerly shipped abroad will prepared for home consumption, but that much of the la will go out of cultivation or be devoted to some other c than tea, and that the condition of the cultivators will still more impoverished than it is at present. The exp now is only one-third of what it was in 1880-81, and i believed by some of the most experienced foreign reside that the acreage which has already gone out of cultivat for tea is enormous. The outlook for the coming seaso not so unfavourable as it has been for years past, as home markets are not glutted, but large consignments tea placed rapidly upon the market would soon reprodu the disadvantages under which the Foochow tea trade l long laboured and the need of combination to restrict sh ments is manifest."

Tea and coffee market.

Public auctions have been sing larly unattractive is the dictum the *P. M. Review* during the week ending 9th July, go kinds only meeting with fair competition, the redeemi feature being that deliveries were satisfactory, bei 1,354,000lb. above those in the preceding year. W append a table giving the London Tea Returns :—

	Duty Paid.		Export.	
	1897	1898	1897	1898
For the week ended July 2, 1898 ...	lb. 4,208,692	lb. 3,815,719	lb. 554,657	lb. 639,
For the 27 weeks ended July 2, 1898 ...	104,449,170	108,856,542	17,449,157	15,841,

Official Statistics of the Tea Trade of the United Kingdom

	1 Month ended June 30.			6 Months ended June 30.		
	1896	1897	1898	1896	1897	189
Imports—						
Indian ...	2,281,723	2,518,330	1,844,963	28,161,338	33,753,075	34,018
Ceylon ...	10,764,832	10,563,884	8,991,507	49,407,240	52,606,801	49,921
China ...	28,264	989,047	314,232	5,733,946	3,959,995	5,026
Other Countries ...	843,675	435,768	513,617	4,601,069	3,673,560	4,100
Home Consumption ...	18,014,725	17,435,117	18,041,072	110,231,967	113,074,000	117,147
Exports ...	2,359,055	3,023,641	2,793,113	15,083,527	18,003,558	17,645
Total Deliveries ...	20,373,780	20,458,758	20,834,185	125,315,494	131,077,558	134,792
Stock June 30 ...	62,174,000	64,194,000	57,258,000	...	...	...

The Wagtail-Human Species.

Though we do not know to whom the "Chirria" alludes, for it is he and he only, for we recognise his method, the following is too good to be missed, being so thoroughly adapted to many inanities who reside within the limits of the Madras Presidency :—

1.
Why does the wagtail leave
His happy home
And risk his precious life
On ocean foam?
2.
Why does the wagtail look
As if he knew
All secrets of the earth,
And Heaven too?
3.
Why does the wagtail think
That only he
Knows how to prune a bush,
Or make good tea?
4.
Why does the wagtail make
In fatuous way
Remarks about the time
He made tea pay?
5.
Why does the wagtail raise
In every mind
A feeling of despair
With rage combined?
6.
Why does the wagtail live?
I think that we
Should ease him from the earth.
So let it be!

We only correct the last line, which should run :

"So ought it be!"

The "Rhea" boom.

Considering the interest just now being taken in Rhea, in all planting centres, we reprint the following Consular Report on Ramie cultivation in Mexico, which previously appeared in our issue of December 19th, 1896 :—

			Amount. dols.	c.
Preparation of lands, plantation of roots, and cleaning work during development of plant	...	...	29,537	40
Cutting and cleaning of stalks	...	...	67,989	81
Carriage of stalks to the machine	...	...	30,250	0
Extraction of fibre—				
		dols.		
Salaries	...	7,548		
Fuel	...	2,000		
			9,548	0
Packing	...	...	10,164	0
Carriage to railroad (1,936 tons)	...	...	5,782	0
Railroad to Vera Cruz	...	...	13,126	0
Shipping expenses	...	...	1,936	0
Freight, Vera Cruz to New York	...	...	32,254	0
Assurance against sea risks	...	...	2,420	0
Total cost of crop transported to New York		...	203,007	21

Results.

	Amount. dols.
Product of sale of 1,936 tons of ramie, at 250 dollars per ton.	484,000
Premium of gold on New York in bills at 60 days, 15 per cent.	72,600
	556,600
To deduct commission and guarantees of sale, &c. ...	27,830
Cost of production, &c.	202,078
Net profit	326,692

According to the official documents we will now see which is the necessary capital to obtain these profits :—

	Amount. dols.	c.
Preparation, plantation, cultivation, extraction, carriage, &c.	203,007	21
Machines for extracting and cleaning the fibre, two small steam motors, pumps, presses, &c.	30,000	0
Total capital	233,007	21

The profits amount, therefore, to 145 per cent. on the working capital. Assuming that the square league of land has cost 100,000 dollars, a very exorbitant sum even for the State of Vera Cruz, and passing half the net profits to amortisation, *i.e.*, 47,307 dollars, the capital would be paid back in $2\frac{1}{2}$ years, and during that time a net revenue of 11 per cent. would be obtainable on the total capital. At the expiration of three years a plantation is possessed, which gives a revenue of 94,000 dol., or 22 per cent. of the capital employed, which capitalised at 6 per cent. is worth 1,500,000 dollars.

Coffee.

Only a very limited business has been done this week, the supplies brought to auction have been unusually small, and even these have not all found buyers, a large proportion being withdrawn for better prices. Quotations have, however, been maintained, excepting for the lowest grades of Guatemala, and for these at the reduction there has been rather more inquiry. The few lots of fine qualities have sold freely at full prices, and the opinion gains ground that with a very short Java crop, and with unsatisfactory news from Columbia, there should be a good demand in the autumn for the balance of the East India crop, and what is left of the Costa Rica crop. In the terminal market little has been done and quotations are unchanged; an estimate of the current crop of $8\frac{3}{4}$ million bags has been received, and is looked upon as likely to produce an advance rather than a further reduction.

London Coffee Returns.

—	Home Consumption.		Export.		Stock.	
	1898	1897	1898	1897	1898	1897
For the week ended July 2, 1898.	Tons. 289	Tons. 232	Tons. 478	Tons. 376	Tons. 19,285	Tons. 14,248
For the 26 weeks ended July 2, 1898.	7,867	7,538	13,748	10,798	—	—

COFFEE SHADE TREE.

Sun-dried Erythrina Lithosperma loppings, &c., contain per ton :—

61·50 lbs. Nitrogen.
57·38 „ Potash.
14·92 „ Lime.
13·68 „ Phosphoric Acid.

Seed cured under Messrs. Sutton and Sons' advice.

Orders should be booked early for the 1898-1899 crop of seed from the parent trees of above analysis at Rs.6 per pound containing about 2,000 seeds. *Germination guaranteed.*

Only thornless variety extant, and is not procurable anywhere save from the

MANAGER, ARIENKOW ESTATE,
Shencottah.

OFFICIAL STATISTICS OF THE COFFEE TRADE OF THE UNITED KINGDOM.

	1 Month ended June 30.			6 Months ended July 30.		
	1896	1897	1898	1896	1897	1898
Imports ...	50,812	63,744	98,314	495,385	557,157	671,359
Home Consumption.	19,842	17,660	21,113	127,850	129,463	132,701
Exports ...	47,627	49,975	59,104	264,583	212,447	286,165
Total Deliveries ...	67,469	67,635	80,217	392,433	341,910	418,866
Stock on June 30 ...	247,000	352,000	445,000	...	...	...

LETTERS TO THE EDITOR.

MANURING OF ESTATES.

SIR,—Referring to my letter published in your last issue on the above subject, *for* 1,100 lb. please *read* 400 lb.

PLANTER.

GENERAL ARTICLES.

GARDENS IN MYSORE.

THE following extract from the report of Mr. John Cameron, Director of the Gardens and Parks in Mysore, may prove of interest to our subscribers, Mrs. Batchelor, who with her father General Morgan have done so much to encourage the cultivation of exotic and other plants on these hills, being singled out for special mention :—

The year was a particularly trying one, owing to the long drought and the complete failure of the garden water-supply, owing to which a large number of plants perished. Those who are in charge of large gardens on the plains of India know how disastrous to garden plants is a deficiency of water—especially in the hot and dry months of the year. Mr. Cameron, however, is a man of resource, and managed to save his valuable plants. Some of the garden crops, however,—especially fruit crops—were almost total failures. The mango crop was a total failure in all the gardens under Mr. Cameron's charge; the jack and other indigenous fruit crops were much below the average. It is somewhat surprising that the Durbar has so far neglected to provide a proper and efficient water-supply for the several public gardens which the State maintains. There were two flower shows held,—one in August, 1896, and the other in February, 1897. The exhibits, however, at both were below exhibition form, owing to the unfavourable season.

Part II. of the report, dealing with "Cultivation and Experiment," is very interesting. Some very valuable and ornamental shrubs and trees, as well as those of economic value, have been introduced, many of which have been taken very kindly to Bangalore. The most important introduction among fruits, Mr. Cameron says, was the importation of some new varieties of strawberries from England, which are doing very well. We hope to refer in detail to this section of the report in our next issue.

The system of training apprentice gardeners is apparently working satisfactorily in Bangalore. Mr. Cameron has six lads now in training. Their period of apprenticeship extends to three years; but it would seem as if this period was not sufficient, as two who had completed their full term being "young and rather under the average in gardening knowledge" have been retained for another year.

The energetic Superintendent has established a very extensive foreign connection, and distributes plants and seeds to, and receives donations and exchanges from, such distant countries as Australia, Canada, South Africa, the United States, California, China and the West Indies. Among Indian contributors we notice that Mrs. R. Batchelor, of Ootacamund, presented the gardens with seeds of some rare plants, among them the African "Lady's finger," Arabian pomegranate, and African brinjal. There is an artist on the garden establishment who did some good work during the by making coloured drawings of a large number of plants. Cameron has recently directed his attention to coffee, and the vation by him of seedlings obtained by Mr. H. G. Parsons, of E lands Estate, Coorg, by crossing the Arabian coffee wit Liberian, will be watched with interest.

THE FUTURE OF TEA.

THERE is no doubt, says a contemporary, that this is engagin attention of a good many who are interested in the industry bo planters and investors, and so much has been written on the su that we are afraid that anything we may contribute will be what stale. Our view is that the Government of India is mined to establish a gold standard of some kind or anothe that we think it is waste of time to discuss the question opening the mints. Government almost plainly says : "We put our hand to the plough, shut the mints, and intend h no other standard than the monetary one of silver." Now, w real gold standard to be introduced, we should do well to con the future, and what it would bring forth with regard to tea. purposely say a real gold standard or currency, for we ar believers in any of the various nostrums for establishi fictitious gold currency. The comparison is somewhat like of a quack doctor to a real M.D. of any of our universities, one will stand examination, the other won't. We are a that a large number of people think that if a gold currency introduced, it would be most injurious to tea, and we are not pared to go so far as to say it would not affect the industry i ously at first, but after things had shaken down, we very doubt if any real harm would be the result. Wages as well as things would adjust themselves, but doubtless the process of ad ment would be a painful one to many. Among other advan which a gold currency would give would be the elimination o gamble which goes on under our present system of exchange; broker would be able to state definitely the value of your instead of, as at present, very often being accused of ignoran his business, &c., owing to the discrepancy between actual received and valuation due entirely to fluctuation in exchange, not to the quality of the tea sold nor the broker's judgm Another benefit that would accrue to the industry in the mean would be the stoppage of all extensions until it was seen things would turn out. There is no doubt this would be a benefit, as it would give breathing time to conquer new mar and these will be sadly wanted for the next few years. amount of time required for the purpose can best be estimated b amount of tea now sent to Australia, the conquest of which ma was begun some fifteen years ago; the result up to date has the introduction of some seven or eight million lbs. out of a tot consumption of some thirty million lbs. At this rate it will take a time to get twenty million lbs. into America, even if the campai carried on in the same vigorous manner as it has been in the p but there are signs that some of the "go" is being taken out o Commissioners in the way of funds at a time when even more v ous action is called for.

THE LANTANA BUG.

NILGIRI and Wynaad Planters will be interested in following from a Ceylon contemporary. If only the would confine its ravages to Lantana, we opine very would mourn its presence, but when, as from Mr. Wil letter, there is a probability of it attacking coffee becomes serious :—

I.

Mr. E. E. Green writes :—"The enclosed may be of interes showing that we are not the only sufferers from the Lantana (*Orthezia insignis*). The insect has recently attracted consider attention at the Cape as a garden pest. It seems to be particu fond of the ornamental foliage plant (*Coleus*)—a trait which is eq noticeable with the pest here. I have had many *Coleus* plants k out in my own garden." Mr. Green encloses a brief paper b Government Entomologist, Cape Colony, showing that the bu prevalent in Natal and has been known there for the past fifteen y

Some think it is a native of Natal, and altogether there is less fear of its proving a destructive pest from the experience gained in that Colony. This leads us again to mention that a full report on this bug, by the same Entolomogist, Mr. Lounsbury, is produced in the local *Agricultural Magazine* (included in July *T.A.*), from which a good deal of information can be gained. Since writing this, Mr. Willis's latest letter on the subject has come to hand and will be read with interest in another column. Clearly *Orthezia insignis* flourishes in Ceylon as it never did in Natal, and it ought to be fought, in our opinion, by Government as well as by private individuals.

II.

Royal Botanic Gardens, Peradeniya,
15*th July*, 1896.

The Hon. the Colonial Secretary,
Colombo.

Sir,—With reference to your letter of No. 36 of 27th June, 1898, I have the honour to report as follows upon the insect pest that is now so largely attacking Lantana.

2. The insect is a scale insect of Coccid, known as *Orthezia insignis*, and appears to have been introduced in a wardian case sent from abroad to the Peradeniya Gardens. An account of it with figures was published some years ago by Mr. E. E. Green (*Ceylon Observer Press*).

3. During the last five years it has spread to a very large extent, and is now abundant in all the country within 20 miles radius of Kandy, and occurs in other places beyond this radius.

4. It feeds chiefly on the Lantana and other weeds, especially those belonging to the family Acanthaceæ; but at times will feed upon almost any kind of vegetation. It does not, however, seem to find tea a congenial food plant, and has rarely been observed upon it.

5. At present no particular damage is being done by the *Orthezia* to cultivated plants, except in gardens; but the Lantana is being killed out by its ravages, and afterwards there will be grave danger to other plants, though it is quite likely that the insect may never seriously attack tea. Coffee will be in great danger, as the pest already feeds on weeds belonging to the same family.

6. The pest is very difficult to eradicate, and I think that there is no longer any possibility of completely exterminating it; it can only be kept from becoming worse and spreading to important cultivated plants.

7. Planters and other cultivators should be advised to keep a sharp watch on all Lantana and other weeds on the bonndaries of their estates and to cut and burn them, to prevent the insect from getting upon the plants cultivated.

8. In view of the mischief that is done by ignorance in dealing with such matters and the risk that *Orthezia* may become a terrible pest, I propose to publish a circular giving full details as to the nature of the pest and the steps to be taken to prevent its further spread.

I am, etc.,
(Signed) JOHN C. WILLIS,
Director, Royal Botanical Gardens.

FERMENTATION AND OXIDATION.

The following, culled from the *Planter,* should open an interesting correspondence amongst the more advanced of our tea planters. Our own view is certainly "oxidation," though amongst some of our older planting friends we have seen a process which certainly was fermentation, if not actual decomposition :—

"What is the difference between 'Oxidation and Fermentation'? Oxidation (by the way, it is spelt with a 'y' in my dictionary) is a term applied to the union of anybody with oxygen, the body being then said to be *oxidised.* I do not think that this is a correct term to apply to the rolled leaf, which some say undergoes 'oxidation.' The more correct term to apply would and ought to be 'fermentation,' because the change which occurs in one organic substance when influenced by another in a state of decay or putrefaction is called fermentation. Every substance which is liable to putrify becomes while putrifying a 'ferment.' Colonel Money in his 'Essay' on the Cultivation and Manufacture of Tea says: '*Fermenting.*—The balls accumulated are allowed to stand until *fermented.* I look on this being done to the right extent, and no more, as perhaps the most important point in the whole manufacture.' . . . . 'When the tea is ready for firing off over the charcoal, it should be worked off as rapidly as possible, as it is more likely to turn *sour* at this stage than at any other time in the process. Delay in firing off is, in my opinion, much more the cause of sourness than any over-fermentation previous to panning.'

"Since Colonel Money wrote his essay, manufacture of tea has made immense strides, through the introduction of machinery, but the process is much the same; he mentions the term fermentation only. Whereas Mr. Kelway Bamber says on pp. 225 *et seq.* in his essay 'Chemistry and Agriculture of Tea.'"

The tern 'fermentation' has been usually applied to this process, but 'oxidation' more correctly describes the changes in the leaf that take place in the comparatively short time allowed. If, however, the leaf was allowed to lie in heaps for many hours, the temperature would rapidly rise to between 9° and 100° F., and a kind of fermentation would set in, accompanied by decomposition, &c. Most planters will admit that after an hour or at the most two hours after the bolled leaf (if not put into the drying machines) has been taken out of the rolling machine, and—let us say—allowed to ferment, if a rand is passed into the leaf, even if only lying 3″ thick, a perceptible *heat* is felt, certainly sufficient to admit of the process being called hermenting. Mr. Kelway-Bamber is a chemist, and ought to know the difference between the two terms, for he speaks with no uncerfain voice—or rather writes with no unsteady pen, but—and a very dig but—terms which planters have been in the habit of using will tie very hard.

TEA SWEEPINGS.

A Decision has been given by the General Appraisers at New York as to the proper designation of tea sweepings mixed with lime and asafœtida, and which are dutiable at one-fourth of one cent per pound and 10 per cent. *ad valorem,* under paragraph 20, Act of 1897. The decision was rendered in the matter of the protest of Hensel, Bruckman and Lorbacher, against the decision of the Collector of Customs at New York, as to the rate and amount of duties chargeable on certain merchandise, imported per steamer *Manitoba,* and entered October 16, 1897.

General Appraiser Wilkinson's opinion is as follows :—

The merchandise is a novel and peculiar mixture, imported into this country for the first time, and there is no president to assist in determining its proper classification.

The law of May, 1896, prohibiting the importation of unwholesome tea, excluded inferior teas that had been used in the manufacture of caffeine. Under somewhat similar conditions in England, the authorities admitted the tea free of duty after its use as a beverage had been rendered impossible by its being mixed with a small amount of lime and asafœtida.

In reply to a caffeine manufacturer of this country, the Department wrote under date of August 17, 1897 :

The Department is in receipt of your letter of the 11th instant in regard to the proposed importation into the United States of low-grade tea and tea dust for the purpose of making caffeine, and you ask for a ruling of the Department allowing such importation, provided the article is mixed with slack lime and asafœtida—100 parts of slacked lime and one part of powdered asafœtida to 1,000 parts of tea—and that the mixture is imported in bags distinctly marked as a drug.

In reply, I have to say that upon an actual importation of such material, instructions will be issued to the Collector of Customs at the port of arrival to admit the same to entry, provided the merchandise is not imported as "tea," and that its character as tea has been changed by the mixture of slacked lime and asafœtida as proposed.

An importation of tea thus treated was assessed for duty as a non-enumerated manufactured article at 20 per cent., under Sec. 6, Act of July, 1897, and is claimed to be exempt from duty as a crude drug under paragraph 548, or as a crude vegetable substance under paragraph 617, or to be dutiable at 10 per cent. under Sec. 6, or at one-fourth of one cent per pound and 10 per cent. *ad valorem* under paragraph 20. Its character as a beverage having been destroyed, we are of the opinion that the article is no longer tea commercially, but that it has been isolated as a drug. It would seem hardly to be a crude drug, which, as a rule, is a definite thing of an elementary character. But in this case there is a mechanical mixture of a mineral substance with two vegetable substances.

While this combination does not amount to a manufacture, it would appear to be a process of advancement covered by the phraseology of paragraph 20. The advance may be regarded as one of value, for the merchandise would have no value when imported without having been subjected to this or some similar process.

The case is by no means clear, but in accordance with the views expressed, we find that the goods are non-edible drug leaves advanced in value by the addition of a small portion of lime and a minute quantity of asafœtida.

We sustain the claim that the said merchandise is dutiable at one-fourth of one cent per pound and 10 per cent. under para. 20 of the Act of 1897.

General Appraiser Tichenor gave a dissenting opinion as follows:

I must dissent from the reasoning and conclusions of my colleagues in this case. They state, and properly, I think, that the article in question "would seem hardly to be a crude drug, which, as a rule, is a definite thing of an elementary character," and yet they find that the article is a drug advanced in value, etc., and hold that it is dutiable as a drug under paragraph 20 of the new Tariff Act. This impresses me as being illogical and inconsistent. To be dutiable under paragraph 20 the article must be a drug, and, therefore, must have been advanced from the condition of a crude drug.

The essential and characteristic element of this article is tea. Tea in the form of sweepings or otherwise is not a drug, and the mixing of 10 per cent. lime and 1 per cent. asafœtida certainly does not make it a drug. Never having been a drug, I am unable to see how it has become a drug within the meaning of paragraph 20. This paragraph provides for vegetable drugs only, and does not include articles composed in whole or in part of mineral substances.

According to the testimony of Dr. Schaefer, the real importer and owner of the article, it is prepared especially for making caffeine; is mixed in a mill in certain definite proportions of tea sweepings, lime, and asafœtida, and thus prepared, according to his statement, it is entirely impossible to use it for any other purpose. It is, therefore, an article manufactured in whole or in part, being intended as available for a single use only, viz., of being converted into a pharmaceutical preparation known as caffeine.

I am of the opinion that the protest should be over-ruled.—*American Grocer.*

THE UNITED PLANTERS' ASSOCIATION OF SOUTHERN INDIA.

FIRST DAY.

(*From the "Madras Mail."*)

BANGALORE, *8th August*, 1898.—The Planters of Southern India met at the Cubbon Hall to-day at 2 P.M., the forenoon being devoted to a Committee Meeting. The following were present:—

Central Travancore	...	H. M. Knight.
Coorg	...	A. Lambert, H. G. Parsons, C. G. Murray-Aynsley, W. H. Sprott.
Kanan Devan	...	H. M. Knight.
Lower Pulneys	...	H. O. Newport.
Nelliampathis	...	J. C. Abbott.
Nilgiris	...	W. L. Edmiston, E. G. Windle.
N. Mysore	...	E. C. Bolton, Fred. J. Parton.
S. Mysore	...	Graham Anderson, C.I.E. J. A. Harris. Jno. G. Hamilton.
Shevaroys	...	C. G. Lechler, Robert Gompertz.
Travancore	...	H. M. Knight.
Wynaad	...	J. W. Hockin.

The agenda for consideration comprise the following:—

1. Secretary's Report and Accounts.
2. Confirmation of 1897 Proceedings.
3. Election of Office-bearers.
4. Committee of Enquiry 1896.
5. Currency.
6. Agricultural Matters:—
   - (*a*) Coffee Scale and Lady-birds.
   - (*b*) Leaf Disease.
   - (*c*) Agricultural Chemist.
   - (*d*) Cinchona.
   - (*e*) Import Duty on Chemical Manures.
   - (*f*) Adulteration of Manures.
7. Finances (including Subscriptions for 1897-98).
8. Export Duty on Bones.
9. Encashment of Currency Notes at Treasuries.
10. Classification of Coffee.
11. Registration of the Association.
12. Roads and Communications.
13. Crop Estimates.
14. The Madras Forest Act.

THE ACCOUNTS AND REPORTS.

The Secretary read the following report and afterwards pl the accounts on the table, which were confirmed and adopted:—

One year's records merge into another's without much chan subject, for the matters dealt with by the U.P.A.S.I. are seldo a sort of which "Finis" can be written at any time. The however, the sad tale of death to be told in the Association's as in so many others. The

Obituary for this year contains the honoured name of Mr. D T. Brett, first Chairman of the U.P.A.S.I., and formerly Chai of the Planters' Conference of 1893.

At last year's Meeting several subjects were discussed, and so to speak, carried forward for treatment during the year that now closed. The report of the

Planters' Enquiry Committee was considered, and remarks the were submitted to Government. The Madras authorities have k done their best to get matters settled, but, unfortunately, Government of India has not yet arrived at a decision.

Finances.—Last year a new system of assessing subscriptions introduced. The balance-sheet that is submitted to-day shows result. A portion of the Reserve Fund was placed on fixed de for one year, in accordance with the Resolution of the Associ and the decision of the Committee. The term will expire sh and the question of further investment will be settled by Committee after the present Meeting.

Registration.—Your Secretary had engaged to go to Englan September, and though his departure was put off until Dece he handed over charge to Mr. Allan Ronaldson in the earlier m This caused the matter of Registration to be deferred unti return, and it is not yet settled. However, a draft scheme has circulated for criticism, and there should now be no difficul revising it and deciding upon a definite plan of action.

Malaria.—No authoritative information has been received, bu understood that Surgeon-Major Ronald Ross has made de progress with the investigation referred to last year.

Roads and Communications.—In accordance with the Resol passed last year, the U.P.A.S.I. has done what it could to assis Wynaad Planters' Association by backing up its memorial o subject of local roads. So far, Government has not respo The Honourable the Planting Member also laid the matter of before the Government in his speech in Council on the Budget, he pressed on the attention of Government the fact that Government of India had saved in their sterling payments a expense of the producer, and it was only just that some sort equivalent should be returned to him in the form of incr expenditure on public works.

Government Cinchona Bark.—Representations made to Go ment have been so far successful that tenders for the supply of were called for during the year by the Director of the Govern Cinchona Plantations. In reply to your Secretary's enquiry as t results, the Director wrote:—"It was estimated that about 100 of crown bark would be required, and the enquiry for tenders res in 246,018lb being offered to Government, as the unit rate ruli the London market. The total amount purchased during the o year 1897-98 was 108,934lb and payment was made at the uni ruling in the London market at the time of purchase, based o actual outturn of sulphate of quinine after the bark had been w up in the Nedivattam factory. The percentage of sulphate of qu in the barks ranged from 3·29 to 6·40, the average for the quantity purchased being 3·95, and the amount paid for the 108 of bark being Rs.23,999-6-5, or an average of annas 3-6·29 pe He observed that the system of purchasing bark to supplemen yield of the plantations had so far been a success from the Go ment's point of view, and as there was a considerable saving eff in freight and Home charges, by the opening of a market at vattam, it was presumed that the planters whose bark was acc had benefited.

Closing the Mints.—A Circular was issued on the 31st Jan 1898, and on the 14th February, 1898, the Chairman addres

special letter to the Government of India. Subsequently it became known that the Secretary of State had determined to appoint a Departmental Committee to enquire into the Currency Question. Prompt measures were taken to secure proper representation of the interests of South Indian Planters, and though it was not found possible to get a planter appointed a member of the Committee, it was arranged that two from South India and one from Ceylon should be heard as witnesses. Co-operation with Ceylon was also arranged for, and as far as possible co-operation with representatives of the Indian Tea Association has been effected. Mr. G. L. Acworth, ex-Chairman of the U.P.A.S.I., happened to be in England, and was asked to move in the matter. Mr. Robert H. Elliot, of Mysore, also undertook to give evidence; while on behalf of Ceylon Mr. Thos. N. Christie, who was a member of the Ceylon Currency Committee of 1893, was chosen. The statements of Messrs. Acworth and Christie have been circulated among District Associations, and a few copies are laid on the table. It may be mentioned that Mr. Acworth was specially asked to consult with Messrs. Sanderson and Mangles, the Association's representatives on the London Chamber of Commerce, and any South India and other planters who might be in London, especially with the Hon. Mr. H. P. Hodgson, who was willing, but was not permitted, to give evidence before the Committee. The points urged upon Mr. Acworth were, combined action and full representation of the interests of producers in India and Ceylon.

Export Duty on Bones.—This subject appears to have hung fire.

Currency Notes on the Shevaroys.—The U.P.A.S.I. supported the Shevaroy Planters' Association, but the latter is not content with the partial success it has achieved, and the subject is again on the Agenda paper.

Scientific Investigation.—There was no strong feeling in favour of the employment of an Agricultural Chemist, and a month ago the proposition put forward last year appeared to have fallen through. The Government of Mysore then submitted a suggestion that gave fresh life to that proposal. A circular issued on the 23rd July gave details, and the matter was also brought to the notice of the Governments of India, Madras, Travancore, and Cochin, whose replies are awaited. The Mysore suggestion comes up for consideration at the present Meeting.

Scale Pests.—Mr. Newport proceeded to Australia in quest of lady-birds for the extermination of certain scale pests on coffee. His report giving full details is laid on the table, and the accounts are also before you.

Chemical Manures.—Owing to the active personal interest the Madras Government took in this matter, it has been decided that the Import Duties levied on certain chemical manures be abolished. The Government of India has now under consideration what manures, in addition to nitrate of soda, shall be allowed to enter the country duty free.

Coffee Stealing.—The Resolution passed last year has been a dead letter up to the present time. Mr. Hamilton's proposals, which were to be elaborated by the Committee of the South Mysore Planters' Association, were to be considered by your Committee. It lately appeared, however, that the South Mysore P. A. decided to leave the matter entirely to the U.P.A.S.I. Committee. The matter will be brought up for discussion at the present Meeting.

Office Furniture.— A "Remington" typewriter has been purchased under the authority of the Committee. A record box was bought earlier in the year.

Library.—Sanction was taken for the expenditure of Rupees fifty on books of reference, &c., but the transaction has not yet been carried through. It is, however, very desirable that a few books of reference should be available, and the Secretary submits further that it would be well if one or more of the Colombo papers were filed in the office, so that close touch might be kept with the movements and opinions of the planting community of Ceylon.

Audited Accounts for the year are laid before you. They comprise besides the annual statement of income and expenditure (1) a small statement regarding the Famine Fund, toward which contributions to the extent of Rs.20 were received during the year; (2) cash accounts of the Reserve Fund, showing a balance of Rs.7,424-12-0 in hand; (3) cash account of the Lady-bird Fund, showing Rs.1,619-5-4 in hand; and (4) a copy of Mr. Newport's account, giving details of expenditure of the money paid to him out of the Lady-bird Fund. As regards the General Fund, it may be remarked that printing expenses during the year were exceptionally heavy, but these statistics will only appear once in five years. The Book of Proceedings, 1897, contained a mass of statistics, the printing of which was very expensive, but these will only appear once in five years. Then, too, numerous copies of the Report of the Committee of Enquiry were printed, in addition to ordinary circulars and pamphlets. Legal expenses and Incorporation expenses are new items: the former relating to counsel's opinion on an Order of the Government of India under Act XIII. of 1859, the latter representing cost of the Memorandum of Association drawn up with a view to registration of the Association under the Indian Companies' Act. Collections were satisfactory and a balance of Rs.623-15-11 is carried forward. Actual income during the year was Rs.4,461-2-11, actual expenditure Rs.4,245-11-7.

The Chairman (Mr. G. Romilly) then addressed the meeting, commenting on the year's work.

The Secretary's Report.

The Secretary's report and accounts were, on the motion of Mr. H. G. Parsons (Coorg), seconded by Mr. F. J. Parton (N. Mysore), taken as read. Mr. W. L. Edmiston (Nilgiris) then proposed and Mr. J. A. Harris (S. Mysore) seconded that the report and accounts be adopted. The Resolution was carried unanimously.

Confirmation of 1897 Proceedings.

The next item on the Agenda was the confirmation of the published Book of Proceedings of 1897. This was formally done.

The Chairman's Opening Speech.

Mr. George Romilly (Chairman) then delivered his opening speech. He said:—

Gentlemen,—I have very little to add to the Secretary's report, especially as I am to continue in the Chair during this meeting and shall have a good deal to say on several of these subjects when they come up for discussion. I can tell you that I have enjoyed my year of office very much, although it has been a fairly busy one; but I may say I certainly would not have enjoyed it if I had not been so ably assisted by Mr. Ormerod and Mr. Ronaldson. Owing to Mr. Ormerod's untiring energy and grasp of detail there was very little left for me to do but to sanction his suggestions, and I dreaded his departure, as you may imagine. However, the dread was unnecessary, as Mr. Ronaldson picked up the thread of business in an incredibly short time, and proved himself a most efficient ally. The good the Association can do to the community and the prominence it has already gained before the public has been illustrated this year by our action with regard to the Currency proposals. In 1892, before this disastrous policy was initiated, which was of course the time to act, the Darjeeling Planters' Association in the North and our own Association in the South were the only ones that took objection to the measures of Government. Though after a lapse of time all the Associations here present joined with us in the matter, there was no prompt action. This year matters have been different, and we were able to act with promptitude and decision with the result that our remonstrance has been set before the Committee of Enquiry, and we were invited to represent our views by tendering evidence before the Committee in London. Luckily we have two good men at Home in Messrs. Acworth and Hodgson to look after our interests. Though Mr. Hodgson's evidence has been refused, he has given us his assistance in consultation with Mr. Acworth, and though I regret very much their absence from this meeting, still I feel they are rendering great assistance to our cause at Home. I should like here to express publicly to Mr. Newport what I have already expressed to him in private by letter—my great sympathy with him in his disappointment. I cannot imagine a greater disappointment to a man than to identify himself with a scheme of this sort, to get his scheme sanctioned, and be entrusted with the work, and then at the last moment, through no fault of his own, to fail. However, I trust the failure will be but a stepping-stone to success. (Hear, hear.) Gentlemen, I will end by moving a Resolution in which I know you will all join with me. The Secretary has alluded in his report to the death of our first President, Mr. Digby T. Brett. I feel that, putting aside his services to our cause, all of you who knew him must have liked him. He was a very great friend to me, and it is with real grief that I move the following Resolution:—"That this Association wishes to record its sense of the deep loss it has sustained in the death during the past year of Mr. Digby T. Brett, its first Chairman, and one to whom, to a great extent, it owed its origin, and that the Secretary be instructed to forward a copy of this Resolution to Mrs. Brett with an assurance of the respectful sympathy of this Association with her in her grief."

Mr. Graham Anderson, C.I.E. (S. Mysore), said:—Gentlemen,—I have the honour most sincerely to support the Resolution. I feel

that I am only voicing the sentiments of all brother planters, both of Mysore and South India, when I say that we all deeply feel the loss we have sustained in the death of our first President. His name will ever remain associated with many of the improvements which have been necessary in the planting districts of Mysore, and we will always remember him with affection and respect as the first President of the Conference which was the stepping-stone to this United Planters' Association of Southern India.

The Resolution was carried in silence.

ELECTION OF OFFICE BEARERS.

Before proceeding to vote for the office-bearers for the ensuing year, Mr. H. G. Parsons said that he did not think it would be out of place to propose a hearty vote of thanks to the Chairman for the work done during the past twelve months. Though he remained in the chair to conduct the proceedings of the present meeting, he thought the present was a suitable opportunity to express their warm appreciation of the efforts and the trouble and interest he had taken in all their affairs. The more so as to his duties as Chairman he had to add, after the Hon'ble Mr. Hodgson's departure, many of the duties which would in the ordinary course have fallen to the Planting Member of Council. They had all received confidential circulars and information which plainly showed that the Chairman had exerted himself in every way even in directions where the Planting Member of Council would have had to take steps. He therefore proposed that the Chairman be accorded a hearty vote of thanks for his services during the past twelve months.

Mr. J. G. HAMILTON seconded the Resolution, which was carried with acclamation.

The CHAIRMAN acknowledged the compliment in a few appropriate words.

The result of the balloting for office bearers for the ensuing year showed that Mr. Romilly was re-elected Chairman, Mr. J. C. Abbott (Nelliampathis), Vice-Chairman, and Mr. H. Ormerod, Secretary.

Mr. ROMILLY, in acknowledging the further compliment paid him, said that he really could not thank the meeting too much for this expression of their opinion of his work. He could not quite understand the motive of their action, but he felt sure it was due more to his work on their behalf outside that room than to his feeble attempts at oratory in the room.

ADDITIONAL SUBJECTS.

Messrs. KNIGHT (Travancore) and EDMISTON (Nilgiris) asked permission to have the following additional subjects put on the Agenda paper:—Tea Duty in London. The shipments of Tea by the s.s. *Nurani*. Permission was unanimously accorded, and the subjects will accordingly come up for discussion.

THE COMMITTEE OF ENQUIRY, 1896.

This was the next subject on the Agenda paper. The Chairman, in opening the discussion, said :—

GENTLEMEN,—I thought at our last annual meeting that the discussion of the proposals of the Government of India for legislation on the lines laid down by this Committee's report would form the most important piece of work before us during the past year. As you may remember, our Member of Council, Mr. Hodgson, was told to inform us that our decision and suggestions on the report must be with the Government of Madras by the 17th August, and our letter embodying all our suggestions was signed by me and despatched before that date. But since then we have heard nothing more on the subject. H.E. Sir Arthur Havelock very kindly exerted himself on our behalf and tried to get the views of the Government of India placed before us in time for this meeting, but I received a letter from the Revenue Secretary some weeks ago saying that this would be impossible. In the meantime our labour difficulties are in our districts as great as ever. Lord George Hamilton in his financial statement lays great stress on the fact that the Indian population is rapidly increasing and that India promises in another 50 years to become one huge congested district. In the leading articles and criticisms of his speech which I have read, this statement is always prominent, and various methods of combating the evil for the time being are put forward in the shape of wider emigration and a greater extension of the facilities for allowing labour from the congested districts to migrate to where labourers are required. Surely it is a strange commentary on this statement and on these criticisms of it, and one that I have never ceased to emphasise, and that we should continue to din into the ear, that we planters, although we offer higher wages than those ruling in any other agricultural districts, cannot get a sufficiency of labour. capacity for employing labour no doubt is but a drop in the with regard to the huge increase of the population, but still th is. There is an unsatisfied demand for labour in planting dis not far remote from the congested areas. We have seen withi year thousands of coolies fed and sustained by a charity, to we ourselves, I am glad to think, contributed no small sum, we were anxiously in need of labour ourselves and willing to pa it in wages that would enable the labourers not only to live we also to lay by a considerable sum after a year's work. It is a cu anomaly and one that should give the Government of India for reflection. In my own district land is being largely opene tea and there is an increasing demand for labour. Some Sup tendents, sinking the idea of profits for the sake of turning out clearings, and unmindful of the future, have raised the rates. with what result? No new coolies from fresh districts have to them, but the old labour supply remains as it was, and testif its knowledge of our wants by lowering its standard of wor should be glad to hear from members present how they are affe in their own districts. With us, I can assure you, it is a very se matter. Our tea clearings are thriving; there is no disease s to affect our prospects of returns, and a good interest on ca would be practically assured if there was not this awful da looming ahead, that when our fields are yielding leaf in quantit shall not have the labour to pluck it. Any practical tea-pl knows what this means. It is a different matter with coffee, w work can be allowed to get into arrears if only the labour is f coming eventually; but with tea the labour must be to hand a hour required, or the whole yield for the whole year is ru There is no question of apathy amongst us; we are doing our to help ourselves, but I fear that unless Government will hel and thereby help themselves, and the country, we are powe The Committee of Enquiry, as you may remember, stated th their opinion this difficulty of procuring labour was likely to inc and not to diminish. Surely, then, it is the duty of Governm instead of deploring the possible dangers of the future, to act fo present and to try and relieve the congested districts that exist, to this small extent, by helping them to migrate to where labo required, and to help the employer by giving him some so protection in his endeavours to attract labour, and not let him as he does now, that he is merely throwing money away in irrec able advances. I should like to hear the views of other membe this question of labour as it affects their own districts, and, if scarcity is increasing with them as it is with us, then I shall that we embody them in a letter to the Government of India, urge on them once again that there should be no further dela giving us some assistance and relief. (Cheers.)

At this stage the meeting resolved into Committee to conside Chairman's request.

Resuming open meeting, the following resolution proposed by H. M. Knight (Travancore) and seconded by Mr. Parton (N Mysore) was put to the vote and carried :—"That a very st representation be made to the Government pointing out that delay in issuing orders on the Committee of Enquiry's repo most prejudicial to planters, especially those domiciled in N States and recruiting their labour in British India, and that alth the Government has frequently complained that in the conge districts insufficient, employment exists, it will do nothing to vide employment for coolies in the planting districts, althou has been proved that they are well-paid and well-treated."

CURRENCY.

The Chairman opened the discussion on this much-vexed que in the following speech :—

GENTLEMEN,—This question has been so completely thrashed in the Press during the last year that there is absolutely not new to be said in the matter of argument. When we have champions as Sir Robert Giffen in London and Mr. Yule in Calc we know that our interests, involved as they are with the prosp of India as a whole, are being advocated with (what we must cons to be) an irresistible logic. It is a misfortune that the native India themselves are so apathetic on the subject. If only t voice was raised in their own defence, a considerable deal attention might have been paid to the injustice done to them; e report of the Tea Companies during last year alludes to t diminished profit owing to the high exchange, and in the same every small cultivator, whether of coffee or other exportable prod

whether he knows it or not, is mulcted by this policy of the Government. A neighbour of mine, whose opinion I constantly ask on all subjects and who is now largely opening for tea, said to me the other day that he wouldn't mind if exchange was fixed at 1*s.* 4*d.*, as it still left him an ample margin of profit, and that it would check the extension of tea in Ceylon and in the North. I repeat this remark because I have several times heard the same class of argument; but the reply is obvious; though tea extensions will be checked here, the capital will go to China instead, especially now that the country is being developed and the waterways thrown open, and where with European management, and improved methods of manufacture, China tea may easily retrieve its former position in the trade. This is no vague prophecy, for the same thing has already actually occurred in the opium trade, and with respect to other countries in the matter of coffee. At this time last year, we producers stood practically alone in our avowed opposition to Government, but since then a great change has come over the whole aspect of affairs. The scarcity of money and the consequent high rates of interest bringing financial disaster in their train caused all the Chambers of Commerce to protest against the policy of Government, though they advocated different remedies; then came the appointment of the Committee of Enquiry and Sir James Westland's new proposals, a scheme which has this to be said for it, that it is the only scheme so far that I know of that has met with unanimous condemnation and this itself ought to engender distrust of the Government of India's financial capabilities. Great opposition has been shown at Home to the constitution of the Committee as being picked and unrepresentative, but personally I cannot help thinking that with Sir Henry Fowler in the chair we are sure to have a fair and impartial hearing. I am glad to think that though the North of India was slow to move, the European producing interests throughout India and Ceylon show one solid front, and, as I said before, it is only a pity that the native producers of India have not joined hands as their neighbours in Ceylon have done. Mr. Acworth was to give his evidence on the 12th, and before that he was to have a meeting in London with Mr. Christie, Mr. Robert Elliot, Mr. Hodgson and others. Mr. Christie had already given his evidence, which lasted for a day and half. I hope we shall hear the result by this Mail, but if Mr. Acworth has written direct to me instead of to the Secretary, I shall not get his letter in time for this meeting. At any rate, we owe him a debt of gratitude for taking up the matter with his accustomed energy and giving up a deal of time during his well-earned holiday towards advocating our interests. Of course nothing more can now be done by us, but to await the finding of the Committee. But I venture here to express my own humble opinion that Mr. Yule in his speech the other day at Calcutta was right that in time the policy of open mints will again win the day. "Naturam expelles furcâ tamen usque recurret." Government may again try to keep up the fictitious value they have put on their own silver by some new device, but it will no more stand the test of experience, as shown by the prosperous trade of the country, in the future than it has done in the past. Our hope must be that in the interim our crippled industries will not be crushed out of existence.

Mr. GRAHAM ANDERSON, C.I.E., then spoke as follows:—

GENTLEMEN,—The Association whose interests I have the honour to assist in representing has studiously refrained from doing more than cordially endorse the Resolution passed in 1895, which while expressing contained approval of the Memorandum on Currency drawn up by the Wynaad Planters' Association and incorporated, as an appendix, with the Proceedings of the Planters' Conference held in 1894, emphatically disapproved of the attempt to give an artificial value to the rupee by the closing of the Mints and reserved further action until such time as an appreciable effect should follow the measures adopted. The silence which our Association has considered itself bound to maintain has been all the more irksome, as during the last three years in succession coffee crops have been most disastrously affected by faulty distribution of rainfall at the blossoming season; the trade on the Western Coast has gradually become utterly disorganised by the continuance of the plague in Bombay, and during this last year the prices of coffee in the London market have fallen fully 25 per cent. In addition to all these troubles, the critical state of financial pressure throughout the country has depreciated all classes of securities; discouraged the retention of loanable capital in the country; raised the rate of interest to an unprecedented extent; rendered competition with other silver-using countries ruinously disadvantageous, and made the finance and general conduct of all agricultural enterprises matters of the gravest concern to those engaged in them. The subject of Indian Currency is such an appallingly difficult one, that I shall have to keep at a great distance from the vortex of discussion, but there are so many important interests, one intertwined with the other, that in bestowing even a superficial glance at them, each must claim a fair share of respectful attention. I sincerely trust, therefore, that I may not be charged with presumption for the humble remarks which I am about to make and which I venture to think are necessary to afford evidence that I am not unduly prompted by selfish motives. The Press of India has nobly and unswervingly done its duty as a trusty counsellor, advocate and guide during a time of unparalleled difficulty, with the result that the sympathy of all the most influential organs of public opinion at Home has been enlisted in the cause of Currency reform in India. Even the drastic remedies proposed by the Government have undoubtedly had a beneficial effect, as they have been the means of concentrating the attention of all the leading experts in India and England on the vital necessity of providing a suitable remedy for existing Currency difficulties which are now clearly realised as grievously injurious alike to the interests of Government and the commerce and industries of the country. The various Chambers of Commerce with their vast experience have given emphatic expression to their matured views and conclusions, and the Government has submitted the consideration of the whole subject to a tribunal which can derive every possible assistance in its deliberations from the most eminent experts in financial, commercial and industrial affairs that are available in London. It has been truly stated that there is nothing which is less clearly understood than the enormous difficulties experienced by the Government of India, or the incalculable benefits which have resulted to hundreds of millions of its subjects in the form of peace, progress and prosperity from the purity and general excellence of its administration. It may be stated with equal truth that there are many both in India and in England who do not rightly appreciate the fact that India, so far as the masses of its population are concerned, is essentially a poor country, and that the great show of wealth which formerly existed in temples and places was simply the centralised results of "ceaseless wars, rapine and extortion," which ceased when a strong civilised power took upon itself the duty of establishing a settled and benign form of government. The London *Times* has most clearly indicated one of the principal difficulties of the Government of India by stating that it has to arrange for the maintenance of perfection in its administration, and to discharge large gold obligations in England out of a revenue which is purely Asiatic in character. These obligations, it is well known, are principally for interest on the debt incurred for the construction of railways and other reproductive works, which in addition to stimulating industrial progress in the country have proved so invaluable in times of war, scarcity and famine.

Although the economy of the Government may have been often impugned, still the fact remains that with a revenue which per head of population is less than one-third of the water-rates in London, it has provided its subjects with land to cultivate, roads, railways, irrigational works of colossal magnitude, schools and hospitals, besides everything else which is necessary for the promotion of happiness and security. It is not, therefore, its fault if fiscal arrangements have been made consistent with such administrative requirements, or coincident with the immense development of commercial and industrial activity, but it is certainly its misfortune to have to discharge duties and obligations of great magnitude and variety with its Currency depreciated to two-thirds of its original value owing to the over-production of silver. These facts are well known to all who have attentively studied the changes which have been gradually taking place in the country, but they are of the utmost importance when glancing at the subject of Indian Currency. In a recent article in the London *Times* this subject was described most accurately as one in which the interests of Government, the British manufacturer, the Indian merchant and the Indian producer are in constant conflict, and which, as a problem, is not only complex in itself, but involves far-reaching and most important consequences to the Government and the commerce of the country. It is specially in regard to this conflict of interests that I desire to say a few words which I could not have ventured to do if the situation had not been desired by the greatest journal in the world. Although the fact mentioned seems, at first sight, an appalling one, the conflict is simply the natural result of circumstances which the parties concerned are powerless to deal with individually, each being dependent on the other. The Government cannot fulfil its obligations

with an attenuated revenue, and having large good payments to make in England "desires to do so with as small a number of rupees as possible." "The British manufacturer and the Indian merchant in British goods naturally desire to keep up or raise the sterling equivalent of the rupee." Agriculture, which supports the principal industries of India and contributes the principal item to its revenue, is itself dependent on the proper amount and distribution of rainfall, and those who are engaged in it keenly feel the disadvantages under which they labour when competing with other silver-using countries which have not an artificially enhanced Currency to handicap their operations.

On the 7th June the Secretary of State for India graphically sketched the difference between the Indian and Home revenues as follows:—"Those who take an interest in the difference between our fiscal system and the fiscal systems prevailing in India will know that a much larger proportion of taxation in this country is raised by indirect means than in India, and that here, owing to the greater wealth of the community, they consume a much larger proportion of those taxable articles which, if not included under the head of luxuries, lie in the scale between luxuries and the necessaries of life." This authoritative pronouncement is of the utmost value, as it clearly indicates the lines upon which future action must be taken. There is really such a very small margin of difference between the amount upon which an Indian ryot can subsist in comfort and that which constitutes abject poverty that it is almost impossible for those who have not lived for many years among the peasantry to realise or appreciate how easily their interests may be injuriously affected.

In continuing his masterly address the Secretary of State said:—"The higher the exchange value of the rupee, the less is this 'Loss by Exchange,' and the lower the rate, the greater the loss." These are the consequences experienced by Government, but every local industry and every cultivating peasant experiences consequences precisely the reverse. And continuing, he said:—"Does not India offer a wonderful field for private enterprise and the investment of private capital? In India there is a very great population, frugal, industrious and orderly, a prolific soil and a large amount of mineral wealth practically untouched. I will not take part in any controversy, but if, however it is done, people could be assured that they would get back from India the value of the money they had invested there, I believe it would effect an economic and industrial revolution in India."

Referring to a Memorial from the Bombay Chamber of Commerce, asking that measures should be taken "to amend the critical state of financial pressure throughout the country," which was attributed mainly to the contraction of the Currency, the India Government in a letter to the Secretary of State writes:—"We take occasion to note what while we fully realise the great disadvantage to commercial operations in the existence of a discount rate ranging as high as 10 or 12 per cent., we are not inclined to agree with the Chamber that such stringency is the direct outcome of actual scarcity of the Rupee Currency. We think that one prominent cause which contributes to the stringency is the transfer of capital from India and the impediment to its flow to India from England, due to the distrust of the future of the rupee."—*Economist.*

"It is held by many experts, we believe, that as regards the scarcity of rupees *versus* scarcity of loanable capital, the truth is that India has suffered from both, though Lord George Hamilton and Sir James Westland contend that the scarcity is only apparent in the case of the latter."—*Madras Mail.*

The above extracts more than clearly manifest the difficulties of the situation and the causes to which they are attributable. Agriculture, of all other industries, is the most sensitive to depression, stringency, or disturbance of the money market, which are embarrassing to everybody engaged in trade or commerce and discourage the retention of loanable capital in the country. The free use of capital is indispensable to the development of India's resources, and any thing which restrains or restricts its use is calculated inevitably to prove disastrous to its economic prosperity. The enormous increase in the population of India and the almost entire dependence of its people on the soil are rapidly becoming matters of supreme concern to the Government. The whole subject of the Currency arrangements is fraught with difficulties of the gravest description, and the proposals of the Government to melt down rupees annually so as to still further artificially enhance the value of the remainder have been emphatically represented by the Bombay and Calcutta Chambers of Commerce in Memorials dated 13th and 18th June, respectively, as calculated to increase rather than to mitigate the critical tion of affairs now existing. For these most cogent reason Association whose interests I have the honour to assist in repr ing joins in most earnestly deprecating the proposals referr and further regrets that it cannot endorse the suggestion President of the United Planters' Association of Southern Indi tive to the introduction of an Export duty. Its members de absolutely refrain from attempting to suggest any remed difficulties which are of such magnitude and complexity, affe as they do the interests of the Government, its people an commerce of the country. The whole subject is now engagin attentive study of the members of the Currency Committee will have to decide what measures are best calculated to su interests of all concerned, and I am enjoined to express a fe hope that the welfare of agriculture, which is the mainstay of will receive every possible consideration, seeing that it contri the largest item to the revenue of the country, affords the pri support to its railways, provides congenial employment to the of its inhabitants, and creates nearly the whole of its exports

Mr. W. H. SPROTT said:—I do not know if the members o U.P.A.S.I. have seen the Government Blue Book of the Corres ence respecting the proposals on Currency made by the Go ment of India. It seems to me we have taken a very bold and u course in the letter of the 14th February, 1898, from the Chai of the U.P.A.S.I. to the Secretary to the Government of Finance and Commerce Department. We there state that i opinion the true solution of the present difficulty lies in the re- ing of the mints. Surely this is rather a bold statemeut on the of a body of Planters to make to Government, and one wh directly opposed to the opinion of experts and the Govern policy. At present the result of having an unstable curr in the country is that there is no money in the country Bank rate has gone up, and no money can be got for adva very great inconvenience is caused to everybody and tra practically brought to a standstill. Surely it would have better for us to have followed the policy of the Bombay and Cal Chambers of Commerce and advocated the establishment of a s currency in the country with as little delay as possible, instea committing ourselves to advocate a policy which is directly opp to Government, and can only tend to weaken our influence. I address he points out how trade has been hampered by the vi fluctuations of the currency, and that the trade of India would tinue to be hampered with them unless a gold standard was i duced. What we want is that our interests should be prop considered and weighed, and the best course adopted for the fu of India generally, and I think it is a great pity that we sh advocate any specific policy which, for the moment, looks to b our advantage, but which will, no doubt, bring ruin on the cou and cause an enormous increase of taxation, and probably in the be disastrous to us.

Mr. H. G. PARSONS said:—I presume the resolution before meeting has reference to a vote of thanks to Mr. Acworth for time, trouble, &c., he has taken in carrying out, to the best o ability, our views with regard to the Currency question. I am prepared to second the Chairman's proposal of a vote of thank Mr. Acworth for all he has been doing. At the same time, I th it is quite right that you should hear those of us who do not gether agree with the policy that has been indicated. I should say that our Association has distinctly instructed us to say th mistake has been made—and in saying this I think we are, certain extent, in agreement with what South Mysore has said proposing a definite remedy as to how the question of a fixed rency should be met. We quite agree, and, from our own poin view, it is clear that the lower the rupee goes, the better it is for but we don't think it is possible ever to expect that it will fa low as it might if Government would let it alone. What our A ciation admits, what we all ought to admit, is that a fixed excha is the best thing for us, and to that extent we must extend assistance to Government. When I say that our policy shoul to agree to fix exchange, I mean that we should use all our ener to insist that the rate fixed should be low enough not to materi interfere with the agricultural and producers' interests and so ham the trade of the country. The Government has given us the imp sion that it wants to fix exchange at 1*s.* 4*d.*, and I presume from own point of view and that of the other producers of India that would hamper the trade of the country generally. But how value of the rupee should be fixed, I think, is a question that sho

e left entirely to those experts who have been giving the matter lmost a lifetime of consideration. I think from the last two para-raphs of Mr. Christie's pamphlet he is very much of the same ind as our Association. In having made these remarks I distinctly ish you to understand that we do not in any way propose a vote of ensure on what has been done. What has been done has been one; but we only desire to state publicly what are our views on his matter.

Mr. ROBERT GOMPERTZ (Shevaroys) said that he disagreed very nuch from what had been said by the two previous speakers, that he matter should be left entirely to experts. He thought the experts vere quite as much divided in opinion as the planters themselves. Mr. Acworth, he thought, had suggested a good way out of the difficulty, namely, by a sliding scale. The loss to Government if the Rupee fell to 11*d.* was estimated at 15 crores; but as part of this loss vas already covered by taxation, it was only necessary to consider ow the balance should be met. Producers were quite willing to ave an export duty placed on their produce, provided that if the Rupee rose in value or the export trade increased, the duty should e proportionately reduced. The exports of Ceylon should be taxed o a like extent. If this were done, he (Mr. Acworth) goes on to say he whole tax so raised should be spent on the producers themselves n improving communications, extending railways, etc. This was, e (Mr. Gompertz) thought, a decidedly good position to take up, nd should receive their warmest support. With regard to the last wo paragraphs of Mr. Christie's report, dealing with the proposal o re-open the mints, on which he said the sudden drop in the Rupee to bullion value would be a revolutionary step which would eave Government in a position of grave anxiety with regard to its terling payments, Mr. Gompertz said that when Mr. Christie wrote hat he could not have seen Mr. Acworth's proposal regarding the liding scale which would relieve Government of all anxiety. In November, 1897, he wrote to the Chairman suggesting that Govern-ment should be asked to re-open the mints and to cease to tamper with the Currency, at the same time protecting its servants from hardship by paying all who were engaged in Europe, or who had a European domicile at par, or at such lower rate, as 1*s.* 8*d.* or 1*s.* 9*d.*, as might be considered just or equitable. The sum that Government would be out of pocket by this arrangement could probably be raised without the slightest difficulty by increased taxation which the expansion of the export trade and the increased prosperity resulting from a depreciated currency—or rather from the removal of the crushing handicap which was strangling the country—would enable the people cheerfully to pay. He went on to say that if Government would do this, they would be prepared to bear their share of the burden by accepting an export duty of 2 per cent. for every penny that exchange might fall below 1*s.* 4*d.* If the proposal was adopted, taking produce worth £100 in each for facility of comparison, the producer would get the following amounts:—

Exchange.	Export Duty.	Result.
s. d.		
1/4 = Rs.1,500	Nil	Rs.1,500
1/3 = „ 1,600	2%	„ 1,568
1/2 = „ 1,714	4%	„ 1,645
1/1 = „ 1,846	6%	„ 1,735
1/- = „ 2,000	8%	„ 1,840
-/11= „ 2,182	10%	„ 1,964
/10= „ 2,400	12%	„ 2,112

From the above it would be seen that if the Rupee fell to 10*d.*, which seemed quite possible, they would, after paying the Export Duty proposed, get Rs.2,112 instead of Rs.1,500 for every £100 worth of produce. The lower the Rupee fell the greater would be the loss to Government, the greater their taxation, and the greater their gain. As this would affect every single article exported to exactly the same extent, every single producer would equally benefit and *pari passu*, by the increased export duty, so would Government. They did not want, as some had supposed, to benefit at the expense of the tax-payers; they simply required that the crushing handicap under which they groan should be removed so that they might compete on equal terms with other silver-using countries. The only persons at whose expense they might be supposed to benefit by the re-opening of the mints were Government and Railway servants, having expenses which must be paid in gold. With regard to Government servants he had already made a suggestion: with regard to Railway servants, the increase in traffic would enable the companies to pay at the rates fixed by Government for its servants. All would benefit except those who were in receipt of fixed salaries. It had been thought by some that if the Rupee fell to its bullion value exporters would not profit much because prices would rise. But this was a misconception, because if the price of grain rose the area under cultivation would be bound to increase, and eventually it would be found there would be no great increase in prices. Mr. Gompertz then went on to show, from his experience, that the decrease in the purchasing value of the Rupee had not been contemporaneous with the fall in exchange, but, as in most countries, had been determined by the needs of a population advancing in civilization, etc.

Mr. J. W. HOCKIN was the last speaker on the subject. Before the meeting resolved into Committee he said:—

MR. CHAIRMAN,—As our views on Exchange are being laid before the Currency Committee in London, there is no necessity for us to expound them at length here. I think, however, it may be of use to comment on the peculiar line of argument adopted by our opponents, both in London and in the local Press. It is simply this. When confronted with facts previously unknown to them, they retort:—Why you planters are simply fools,—other more opprobrious epithets were used locally—you not only don't understand the question, but you don't understand your own business, or what is good for you. Though abuse is no argument, it might have had a misleading effect, had not our opponents endeavoured to justify the arrogant tone they adopted, and, in so doing, made statements which every planter of any experience knows are absurd. For instance, in the *Economist*, "an East Indian Merchant" maintained that Java could not be quoted as a country hampered by a fixed high Exchange, on the ground that the extension of tea in Ceylon is due, not to low Exchange, but to the blight of coffee; and on the ground that tea cultivation has not materially increased in Java, because that country has not suffered from coffee blights. To support the last statement, he quoted the increase of Java coffee exports from 515,000 piculs in 1888 to 767,361 piculs in 1897. He is apparently ignorant that Java exports of coffee were 1,767,000 piculs in 1883; were reduced to 515,000 piculs in five years by the ravages of leaf disease; and only increased to 767,000 piculs in the next nine years, because Liberian had been largely planted up in place of the exhausted Arabica variety. Yet, this is the merchant who ventures to taunt the London Secretary of the Ceylon Planters' Association with ignorance of the history of his industry! Locally, we were told that statements about the Brazil coffee industry compiled by Rio merchants, and printed in trade reports, open to anybody with a sufficiently large business to be in the way of receiving such reports regularly, were baseless assumptions because our critic had not previously heard of them. We were told we were being taught details of our industry, familiar to us from our infancy in business, because our critic had apparently just discovered them himself, and thought they were equally new to us. We were informed that the price of tea had gone down to 5*d.*, when the quoted price in London was 7¾*d.* per lb.! We can assure our critics it is just as dangerous in planting matters for outsiders or novices to try and teach men who have studied their industry for a quarter of a century, or more, as it is in every other line of business. There are many things that can only be learnt by a personal experience of business. There are plenty of men both in India and Ceylon who have not only had that experience, but have studied the planting industry all over the world in the numerous publications devoted to it, and also when travelling. We have now the elected representatives of planters in North and South India and Ceylon unanimous as to the effect of Exchange on their business. The mill-owners of Bombay are also arranging to give evidence, much on the same lines. Surely it is safer and wiser to suppose this mass of business men know their trades better than merchants, political economists, and amateurs? I can't agree with the gentlemen who urge we should not suggest any remedy, for the *Times* (London) says that one of the difficulties of the position was that producers had not suggested any feasible remedy. We have proposed a feasible remedy and it was acquiesced in by a well-known writer on the subject in *Capital* as the only true solution of the problem. Then, there is the argument about the unfair gain of the employer at the expense of the employee, which even Lord Farrer and the Government of India are not ashamed to urge. Anyone who knows anything about the plantation cooly knows that he has far more power to cheat his employer than the employer has to cheat him; that what cheating goes on (and there is a good deal in certain districts) is all done by the cooly, and any employer who dared to retaliate would soon be left without a cooly. This argument about our illicit profits has been a little complicated of late by an attempt to prove that we make no profit by low exchange; that the whole thing is an illusion. If so, this disproves the charge of unfairness, but later our critic seems to admit it is only, if things were as they ought to be, and not as they are, that the profit would

disappear. As we have only to deal with things as they are, we may leave other conditions out of consideration, and assume there is a profit. As to its fairness, I will quote what a well-known writer in *Capital*, who is certainly not a planter, says on the subject: "What an empty argument it is to talk about the illegitimate gain of the planters and producers! Do we hear the natives of the country—and they are the chief people to be considered—talking in this fashion? Never? When exchange goes down, does the merchant pay his manager more? Does the Bank pay its employees more? Do mill managements raise the wages of their hands?" He admits that Government compensate the higher European employees, and perhaps some mercantile concerns do compensate the same class, but neither Government nor mercantile concerns compensate the mass of their employees. If not, if no business in India is conducted on these principles, why do our critics talk in canting terms of the unfair gains of the planter by exchange? Is it in the hope that by throwing much mud some may stick? The writer in *Capital* accurately sums up the position when he says:—"To assail the planter with the rubbishy cant of moral economics is simple disgusting!" If any unfair gain is made at the expense of the cooly, and none such has been proved, or is probable, seeing how independent he is, it is the British public who get it in an undue lowering of the price of tea. As far as the cooly goes, the more rupees his employer gets the better for him, as he is sure to get more than his fair share of them. Just now he is in danger of getting fewer rupees, as owing to the forcing up of exchange Ceylon planters are actually advertising for offers to take coolies off their hands,—a thing never heard of since the ruin of coffee in Ceylon.

Again, we are told that the prosperity or adversity of industries is settled by other conditions, and exchange has never had any influence on them. We all know that the conditions of trade are ever varying, and success in business depends on a just appreciation and clever balancing of various adverse and favourable influences as they arise. But why should the rate of Exchange be the only influence to be neglected? Especially when the variations from a par rate are greater than have ever been known before, and past experience can give no guide as to their effect. The Brazilian lately has been getting the equivalent of Rs.40, the Chinaman and other silver-using people the equivalent of Rs.22 to Rs.24, while we get only Rs.15 for every £1's worth of produce sold in European markets. Does not this enable them to produce at a gold price which will ruin us, other things being equal? Fortunately, as yet other things are not equal; but Brazil is affecting our coffee prices, and the great European nations are striving to put China in a position to affect our tea prices. Supposing a ship springs a leak in mid ocean, given time and material the leak can be cured, the ship brought into dock and made as good as new. But, if a gale of wind arises as soon as the leak is sprung, that ship will be lost. Blights and the lowering of prices by competition are leaks we have to be always stopping. The former can only be overcome by high cultivation, and the latter by an increase of silver prices to balance the fall in gold prices. But just now Government is raising a gale of wind by forcing up exchange, which will prevent our stopping our leaks by taking away the extra rupees we have been devoting to that purpose. Which is the primary cause of the loss of our ship if she founders,—the leak or the gale of wind? The gale undoubtedly, as but for it the leak could be stopped, nor is India peculiar in having leaks, all countries are liable to them as all ships are. But India is peculiar in that it is the only tropical country the Government of which is forcing the rate of foreign exchange far above the level of that of her competitors. I need not enlarge on the fact that our interests are the interests of the country at large, although Government have disputed it. Because it is well known that an enormous majority of the population depend on agriculture, and the only hope of an immediate increase in that industry is in the growth of produce for export; the welfare of the import trade depends on the ability of the producer to buy imports; and the London *Times* has admitted that, if our views can be maintained, they must ultimately dominate the position. We may be sure Messrs. Acworth, Hodgson, Elliot and Christie may be relied on to drive our arguments home. As for the advantages our opponents hope to gain by fixing exchange at 1*s.* 4*d.*, they are said to be security to trade from the absence of violent fluctuations of exchange; cheap capital to develop the country; and a good rate at which to remit to England fortunes acquired in India. No all classes, planters as well as others, would welcome a fixed exchange if one rate could be secured for all tropical cou though I am told by a successful merchant in a large way o ness the effect of fluctuations by exchange on trade are much gerated. But a handicap of 50 per cent. or more in our rivals' is too high a price to pay for fixed exchange. It is probab Exchange Banks would remit their capital back to India, if exc were fixed. But Bank capital to finance trade is of little use, there is a larger capital behind it to promote industries. such industries can be worked at a profit, capital will not g them in India but into other countries, where circumstance more favourable, the competition of which will still further de India. Nor can fortunes be remitted before they are made, an cannot be made unless profits are good and general. A proof inherent rottenness of all schemes for tampering with the Cu is to be found in the way the doctors are quarrelling wit another: Government will have none of the merchants and ba schemes, and the latter are aghast at the way Government pr to chastise them with scorpions instead of whips as hitherto. us hope the result will be either a return to open mints, or Exchange fixed—if any such fixing is possible—at the averag ruling in tropical countries. This Association, at least, ha flinched from pointing out the only way a return to a sound rency policy can be effected. This is, by offering to submi small direct export duty in place of a heavy indirect one, w only of a South American Republic.

At this stage the meeting resolved into Committee, an adj ment for the day being made at 4-15 P.M.

SECOND DAY.

BANGALORE, *9th August.*—The delegates met again to-day at l and sat till 1-30 P.M. The following business was transacted :-

CURRENCY.

The Committee stage of the discussion on this subject was resu when Mr. R. Gompertz withdrew the resolution he proposed evening.

When the general meeting was resumed, the Chairman annou that the Secretary had received by the mail a copy of the state of the Planting Member of Council on the Currency question was to be put before the Committee that was sitting at Home. presumed, therefore, that the Hon'ble Mr. Hodgson was going examined as a witness after all.

FINANCES.

Except a resolution passed in Committee with regard to an a cation by the North Mysore Native Planters' Association, the co eration of this subject was deferred to the last day, because it impossible to decide anything until it was known what appro tions, if any, were going to be made from the Reserve Fund regard to the question of providing an Agricultural Chemist, &

EXPORT DUTY ON BONES.

This was a subject that was brought up at the last annual mee by Mr. O. Scot-Skirving, N. Mysore, when a resolution was p instructing the Secretary to address the Government of Indi the subject. It will be seen from a paragraph in the Secret Report that this was not done, for reasons which will appear be

Mr. PARTON (N. Mysore) said he had been instructed by his A ciation to again support this subject, but he could urge no fu arguments than those which had already appeared in its favour.

Mr. H. G. PARSONS (Coorg) asked if there had been any fu correspondence since the resolution passed last year upon which meeting could now act.

The CHAIRMAN:—None whatever.

Mr. J. W. HOCKIN:—We passed a resolution last year to ad Government on this subject. The Government has not addressed. Why should we not carry out that resolution this and draft a letter on the arguments brought forward last year?

The CHAIRMAN in reply to Mr. Hockin made the following e nation:—The Secretary had after the last annual meeting wr to Mr. Scot-Skirving and had asked him if he would give a li

MILLIE & REDMOND, late P. THOMPSON & CO., *Ootacamund, Engineers and Contractors.*

argument on which the proposed letter to the Government could be based. Mr. Scot-Skirving did not reply, and in consequence the letter to the Government of India had not been sent. Also, the whole question had been complicated by the fact that while dealing with the currency problem they had suggested that a general export duty should be imposed.

ENCASHMENT OF CURRENCY NOTES.

Mr. R. GOMPERTZ (Shevaroys) introduced this subject. He said that last year the Shevaroys Association had requested the United Planters' Association to support them in a letter they had written to Government advocating the encashment of Currency Notes without a premium at all Government Treasuries and Sub-Treasuries, and the United Planters' Association did take action upon it. The Secretary in his Report had said on this subject that the Shevaroys Association was dissatisfied with the partial success it had achieved and now brought the matter up again. He (Mr. Gompertz) begged to say that they had met with anything but partial success. Last year the matter stood thus. The Government was prepared to cash Currency Notes on the Shevaroys provided it was paid a commission of $\frac{1}{4}$ per cent. Now it absolutely declined to cash Currency Notes at any premium whatever. It had granted them instead Supply Bills, and a more cumbrous and irksome device for meeting their wants he had not heard of for a long time. The speaker then proceeded to read at length the letter which he had sent to the Government last year on this subject, and which was read at the last annual meeting of this Association. That letter, he said, was written so long ago as the 17th July, 1897, and no reply had been received until May, 1898, when a G. O. was received which merely summarised his arguments, but in no way met them; but concluded with the statement that His Excellency the Governor in Council after a careful consideration of the correspondence on the subject approved of the suggestion to issue Supply Bills at Yercaud at one-eighth per cent. He then received a letter in the beginning of May informing him that the system of Supply Bills would come into operation on the 15th May. He wrote immediately to the Accountant-General, and said that the notice given for the introduction of this system was too short for the planters to make their arrangements, and asked that it might be extended by a month. In reply all the concession they got was an extension of 15 days. He again addressed the Accountant-General stating that they still objected to pay any commission on the encashment of Currency Notes, but since their objection had been over-ruled, they cordially accepted the decision of the Government, but saw no reason for the restriction being more irksome than was necessary. Therefore, instead of adopting the Supply Bills scheme, they were prepared to pay the premium sanctioned by Government for the encashment of Currency Notes. The Accountant-General in reply obviously lost sight of the position which had been taken up by his predecessor, and said that Government could not charge commission for cashing its own notes. This, therefore, was a new phase of the question, and the Accountant-General had the effrontery to state that it was quite a mistaken idea to suppose that commission could be charged. Mr. Gompertz wrote once more to say that since the Accountant-General insisted on having the Supply Bills scheme, he might meet planters so far as to empower an officer in charge of the Treausries to issue the Supply Bills. That, however, was not done, but Deputy Collectors were empowered to issue these Supply Bills and, in consequence, the Deputy Collectors of the Nilgiris, Coimbatore, Salem, and Madura were empowered to issue these Supply Bills. To add to the inconvenience a gentleman had complained that he had asked for a Supply Bill for Rs.400 odd, but was refused on the ground that Supply Bills could not be issued for a smaller sum than Rs.500. In reply to a communication from him on this subject, the Accountant-General wrote that the Rs.500 minimum limit for Supply Bills only applied to Yercaud; in other places the minimum was Rs.1,000. Matters now stood as follows with them. They could not, in Yercaud, get Supply Bills for any sum less than Rs.500, and they could not at any premium cash their Currency Notes. This appeared to him a most suicidal policy on the part of the Government. It was proposing to contract its currency by withdrawing as much as 6 crores from circulation, and it would seem its bounden duty to make this course popular, and the best way to do so would be to make its paper readily convertible. But as he had said, at Yercaud, instead of their Note being readily cashable at annas 2 and 4 per Note, they were not cashable at any premium. He trusted that the U.P.A. would agree with him in suggesting that a memorial should be drafted, pointing out how suicidal it was on the part of those who controlled the currency to render their Notes unpopular.

At this stage the meeting went into Committee to consider the question, when the following resolution was arrived at:—"That a memorial be submitted to the Government of India praying that Currency Notes may be made cashable at all Government Treasuries and Sub-Treasuries." The resolution was on the motion and seconding of Messrs. Gompertz and Hockin, respectively, affirmed in open meeting.

CLASSIFICATION OF COFFEE.

This subject was brought forward by Mr. Graham Anderson, C.I.E., in the following speech:—

GENTLEMEN,—Having in my remarks on Currency arrangements mentioned the effects of the extreme stringency in the money market, the difficulties arising from competition of other silver-using countries which have not an artificially-enhanced Currency to handicap their operations, and the alarming fall in prices in the London market, I desire to point out that some slight alteration in telegraphic advices appears desirable to facilitate financial calculations generally. The distinguishing characteristic of quotations and sales of coffee during the last season was the abnormal and most serious difference in the prices for the various sizes of plantation coffee, which had the effect of lowering the average price of even the very best descriptions to a figure which has seldom been touched before. In no country in the world is there more care or attention bestowed on the preparation of coffee than on the plantations of Southern India, and when it is remembered that all the sizes in each consignment represent the produce of the same trees, gathered within the space of, perhaps, only a few days, pulped, washed, dried and prepared by the same staff, on the same plantation, and peeled, sized, garbled and bagged by the same Curing Agency on the Coast, this great difference of price for the various sizes is naturally a very great disappointment to all Planters, more especially when occurring in regard to an article which is sized simply to facilitate roasting, which is followed by grinding to powder, which is subsequently blended and sold at prices which do not vary in accordance with those of the unroasted product. This alarming fall in the price of No. 2 and No. 3 means a most serious loss to the producer and a huge extra profit to the middlemen and retail trade, and as such deserves the earnest attention of all Planters and the Merchants and Brokers to whom their produce is consigned. For some time past, owing to this altered position of affairs, we have all experienced great difficulty in making forecasts on the authority of either circular advices or telegrams. We are one and all very grateful to Reuter's Telegraphic Agency for the information which is daily afforded in the newspapers connected with the prices ruling in the London market, and I feel perfectly certain that the Directors of that Agency will accord sympathetic consideration to any suggestions which have for their object the adoption of some simple alteration in the method of quoting prices, which while giving their establishment no extra trouble, would add most appreciably to the benefits which they at present confer on the Mercantile and Planting communities. Messrs. Sanderson and Co.'s Market Report for the month ending 12th May, 1898, affords a graphic account of the state of the Coffee Market, and clearly indicates the reason for the alarming fall in prices. We read that "when the market opened on the 14th April after the Easter holidays, extensive supplies were catalogued comprising a large proportion of Costa Rica, Guatemala and other Central American descriptions as well as East Indian and Columbian." "In the meantime, old crop coffee continues to arrive on too large a scale, and accumulation of stocks, such as has never before been seen at this time of the year, would have taken place, had not the fear of war between Spain and the United States caused the Americans to buy largely, owing to the apprehension of a tax being imposed. Enormous purchases of both Rio and Santos were made, and at the same time holders in America sent large quantities into the interior. This accounts for the heavy deliveries and may, in the future, act against a recovery in values."

In another portion of the report special mention is made that the "present system of dealing with the sales in London is quite inadequate," as the East Indian and Central American Crops "are being marketed at the same time." The arrangement of quotations for such an immense quantity and variety of coffee must be a work of a most trying character. In order to obtain the concession we desire, it will be necessary to address some of the leading brokers in London, respectfully drawing attention to the difficulties experienced in India in the matter of forming reliable conclusions as to the ruling prices

and prospects of the market generally, owing to the redundancy of terms which are used in describing the quality of the various classes of coffee and the frequent interchanging of these terms without regard to their technically-accepted meaning. I refer specially to the terms middling and medium; but to these must be added good average, good, fair average, fair, bold, bold medium to fine, middling to fine, good, and good ordinary, etc. The difficulties arising from the frequent interchanging of these confusing technical expressions are most materially increased when they are indiscriminately used in connection with the various classes, grades, kinds, sorts, descriptions, qualities, lots, batches and parcels of coffee entering the London market. To illustrate my meaning, I quote at random from a circular advice, dated 10th June, and a telegram, dated 1st July, both of which came to hand about the same time:—

(TELEGRAM.)

East Indian Descriptions.

Good middling average (B) size	97
Nilgiri average (B) size	65
Wynaad	64
Middling Ceylon	103
Medium Mysore	75

(CIRCULAR ADVICE.)

	s.	s.
Plantation Ceylon, middling to good middling	94/	106/
Nilgiri (B) size	67/	85/
Wynaad	64/	76/
Coorg	70/	97/
Travancore	63/	76/
Mysore (B) size, good to fine	32/	101/

Now, we will suppose the finance of an estate has to be arranged for in India on the prospects of the sale of a large consignment in London. Such telegraphic information would be absolutely useless for any calculations, and I feel sure if this matter is respectfully represented to some of the leading London Brokers, they will gladly do what they can to afford more precise and useful information to the Telegraphic Agencies, and thus confer a great benefit on their Planter constituents in this country.

The following resolution was moved by Mr. J. A. Harris (S. Mysore), seconded by Mr. H. G. Parsons (Coorg), and carried unanimously:—"That this Association do forward copies of Mr. Anderson's memorandum on the classification of coffee to Messrs. Mangles and Sanderson for favour of such action as they may deem desirable."

TEA DUTY AT HOME.

Mr. H. W. KNIGHT (Travancore), in introducing this subject, said he did not wish to add any more to what he had said yesterday in Committee with regard to the subject of the reduction of the import duty on tea into Great Britain. All he would do now would be to propose the following resolution:—"That this Association through its representatives, Messrs. Sanderson and Mangles, do urge upon the Indian Tea Association in London the urgent necessity for inducing Government to reduce the import duty on tea into Great Britain, and suggest that strong representation should be made in conjunction with the Ceylon Tea Association in London."

The resolution was seconded by Mr. W. L. Edmiston (Nilgiris).

Mr. BOLTON (N. Mysore) said that the only point in connection with the resolution which struck him was whether the effect of reducing the duty on tea would not have a counterbalancing effect on coffee. The cheapening of tea might have the effect of lessening the consumption of coffee, and that being the case, the resolution might be one that would affect the Association as coffee planters.

Mr. GRAHAM ANDERSON said that with regard to what had fallen from the previous speaker, the only salvation for East Indian Coffee lay in a heavy import duty, thereby keeping out Rio coffee and other lower grades from competing with it on ruinously cheap terms. If anything was done to lower the import duty on coffee, it would be prejudicial to coffee planters. Moreover, people had such confirmed tastes with regard to tea and coffee that he doubted if the effect of reducing the duty on tea would have any effect on the consumption of coffee.

Mr. W. L. EDMISTON asked Mr. Bolton if he had ascertained whether the recent reduction of 33 per cent. on the import duty on tea had made any difference on the consumption of coffee at Home.

Mr. BOLTON said he had no information on the subject.

Mr. GOMPERTZ said that the U.P.A. was an Association of Associations, and it was scarcely seemly for coffee planters to selfishly interfere with the interests of tea planters. If the tea pla wished to get up an agitation to better their own interests, it wa duty of the Association to support them without considering result it would have on their respective products.

Mr. J. W. HOCKIN said he was interested in coffee, but wou this case be glad to back the interests of the tea planters. resolution was then put and carried.

REGISTRATION.

The meeting then proceeded in Committee to consider the M randum and Articles of Association. The former were passed, the latter were being considered when an adjournment was ma

To-morrow Mr. Cameron will be present as a visitor, when cultural matters will be discussed.

The Association meets again at 10-45 A.M.

THIRD DAY.

BANGALORE, 10*th Aug.*—The delegates to the Fifth Annual Me of the United Planters' Association met to-day at the Cubbon R at 10-45 A.M.

A CORRECTION.

The Chairman said that before they commenced busines would like to make a remark about the report that he had seen *Madras Mail* on the subject of the debate on Currency. The v thanks unanimously accorded to Mr. Acworth for devoting a portion of his time during his holiday to the Association's inte had been left out. He had no doubt that all would wish that Resolution should be recorded.

LEAF-DISEASE.

On this subject, before the meeting resolved itself into Comm for an informal discussion with Mr. J. Cameron, the Mysore Go ment Botanist, Mr. J. A. Harris, S. Mysore, made the follo explanatory statement:—"I am pleased to be able to report th Mysore during the past year we suffered comparatively little *Hemeleia vastatrix*. Its presence was noticeable throughou monsoon and up till the end of November; but it never assu virulent form and gradually passed away. We had a very season, no rain falling from the end of October till the beginni April, save in some slight showers late in December, and to th doubt was due the subsidence of the pest. But though droughts to which Mysore is subject and the comparative isol of the estates are a great safeguard against the spread of the sp and practically assure us from the disastrous results which place in Ceylon, we are still left to face the fact that in se favourable to its development we shall probably continue to serious losses. We must not, therefore, allow the compar immunity of some years to make us oblivious to danger. Th cussion at our last meeting, though the object some of us stro was not achieved, has not been altogether fruitless, as we shall later on when the Agricultural Chemist question is discussed Graham Anderson, in an exhaustive paper which he has laid o table, has referred in his preliminary remarks to the criticis which my views were subjected. Well, criticism is most whole but I regret to have observed in some quarters an inclinati decry the consideration of such subjects as *Hemeleia vastatrix* a meetings, on the ground that it is unwise to announce their ence, as by so doing our industry is prejudiced, and its fin position compromised. I venture to make a protest agains view. In the first place, there are other sources of inform besides the Reports of the U.P.A. Meetings, and if there wer short crops would reveal the situation. In the second place, I tain that our industry, so far from being discredited by suc cussion, will gain in estimation, as it will be seen that we are al dangers common to all agricultural enterprises, and are strivi mitigate them. In the third place, I say that if scientific inve tion, as we called it last year, were to be excluded from our A paper, the U.P.A. would be deprived of one of its most impo functions, namely the holding of deliberations regarding m which vitally affect our industry. And, lastly, I assert, we h perfect safeguard against our industry being depreciated in discussions, in the fact that self-interest ever prevents a man running down that on which his own prosperity depends."

The meeting at this stage went into Committee to discu subject of leaf-disease and methods of improving the present s of coffee with Mr. Cameron.

On resuming general meeting again, Mr. Cameron made the follow-ng remarks:—

Mr. Chairman and Gentlemen,—Before my concluding remarks o-day, I should like to thank you for having given me this opportu-ity of meeting you and hearing your views, which were most nteresting. When I was here last year we spoke chiefly on the ertilisation of coffee plants. I do not know that any of us have done ery much since then but speak on the subject. I don't know at least f any one has acted. In your organ, *Planting Opinion*, I published short article on the fertilisation of the coffee flower, from which you ill be able to see how crossing is done. Probably some of you have ot seen the article. It was written over the initials "J.C.," as I did ot sign my name in full. Well, if you read that over again, you will ee how the process of fertilisation is effected. It is a very simple ne; there is nothing very difficult about it. The only thing is that we ave to wait for some time before we can see any results. I hope all f you, at least some of you, will go in for this and try and assist me nd others to carry out some improvement in the production of new trains of coffee. I am quite positive that in this way you will here-fter achieve wonderful results. In improving the strains of plants e are following very much the same principles as we do when we try nd improve breeds of cattle or races of men. The principles are ntirely the same, only that plants are far more easily improved than attle or men. But you must be persevering and have patience and o on with your experiments quietly and on a limited scale on your states till such time as you find you have gained something definite, omething worth achieving. Then in addition to the work of hybridi-ation you must do a good deal by selecting the seed. That is a time-onoured practice at Home, not only by seedsmen and nurserymen, ut also by farmers and agriculturists of all sorts. In selecting seed ou will find the farmer is very particular only to have the heaviest nd finest and best. And it should be the same with the planter in his country. He should not be satisfied with mixed seed; he should nake sure that he has the heaviest, largest and finest in every respect. He should exchange his seed by sending it to other parts of the country o friends and ask them to send him back their specimens of seed qually carefully selected. He should also try and introduce seed rom other countries, such as West Africa, Brazil, Jamaica and other laces where coffee is largely grown. I don't know that I can add nything to these remarks; but as you seem very keen on fertilisation nd seed selection, I think it right to tell you that by means of these wo a man can do a great deal. Of course, high cultivation you tho-oughly understand, and it is needless for me to say much about it. believe, however, that you are going to bring up a proposal concern-ng the appointment of an Agricultural Chemist. In this connection ill you allow me to say that there are chemists and chemists. Hear, hear.) If you are going in for the services of a chemist, I trongly advise you to get the very best man available. You will ave to pay a heavy salary for such a man, but do that ungrudgingly nd your money will be returned to you twentyfold. It is no use oing to a cheap man who will make you believe this, that, and the ther thing, till eventually you find nothing good. I strongly advise ou to get the best man possible, and if the Mysore Government or ny other Government can help you in the matter, take their help nd be thankful. I don't think I have anything more to add except hat I am much obliged to you for giving me a hearing. (Cheers.)

The Chairman:—I beg to move a hearty vote of thanks to Ir. Cameron. The discussion has been a most difficult one to report, ut it has been one full of interest to all present who have heard it—n interest entirely due to Mr. Cameron. Again I thank him for is courtesy in accepting our invitation.

Mr. Graham Anderson:—I have the honour cordially to second he Resolution moved by the Chairman. We are all deeply indebted o Mr. Cameron for the kindly, courteous, and painstaking manner n which he has explained matters to us.

Mr. Cameron then left, and the discussion in open meeting was esumed.

Mr. Graham Anderson had prepared the following paper:—"Last ear, during the discussion which took place at the Annual Meeting, he Honorary Secretary of our Association made some excellent emarks relative to the immense advantages which an Agricultural hemist could confer on the planting industry by the scientific nvestigation of the mysteries which surround the development of he various pests which affect coffee. As he was one of the principal peakers on that occasion, the idea became prevalent in London that Iysore suffered more seriously from injurious pests than any other istrict, and he subsequently at the Annual Meeting of our Association most perfectly explained that this was not the case, and that all he had said was necessary to add weight and importance to the fact that in all planting districts there are an immense number of most difficult problems awaiting solution which can only be properly dealt with by scientific experts. I most cordially agree with Mr. Harris on this important point, and having read portions of the elaborate report by Dr. G. Watts, of the Calcutta Museum, on the various pests which attack tea, I greatly rejoice to hear that the Government of Mysore, with its usual promptitude and benevolence, has had the matter under its consideration, and that there is a prospect of steps being taken to provide the necessary assistance to agriculture generally in the province. I most cordially sympathise with Mr. Harris in regard to the difficulties which he has experienced, as I have already had more than my fair share of them. It is impossible for any one to draw attention to a pest, an experiment or a difficulty without being misjudged or misunderstood in one way or another. The fate of one who ventures to trespass over the boundary line which separates practical working from scientific investigation is always most discouraging. Many years ago I contributed in a very humble way to the fugitive literatue of *Hemeleia vastatrix*, and as the subject is to be considered at this meeting, I very naturally desire to take part in the discussion. As, however, I have very little to add to what I have already written, and as what I have written is far more than I could attempt to explain without unduly taxing the patience of the meeting, I have made a collection of extracts from the *Tropical Agriculturist* and other papers which, I trust, may prove convenient to those who can spare time to peruse them. So far as my own views are concerned, I must continue to claim every possible indulgence. They have been printed and published years ago, as I have known *Hemeleia* as an enemy ever since 1862, when I first joined the planting community, and although I received the thanks of the Government of Madras for my humble conclusions and suggestious, still the opinions expressed thereon by competent scientific authorities had the effect of putting a full stop to any desire to write further on the subject. While cordially agreeing that "to attribute a specific effect to a vague and widely diffused cause is not likely to conduce to the advancement of knowledge," I venture to agree with the same authority that "speculation may rest on a sufficient basis and may be of a sufficiently grave character to call for the most anxious enquiry on the part of those by whom the truth may be ultimately ascertained." Agricultural and horticultural experiments require years of patient toil before safe or useful deductions can be made from them, and as an example of the discouragement offered to those who undertake them, I must refer to the issue of *Planting Opinion*, dated 16th July, 1898:—"We reprint elsewhere an interesting article that recently appeared in the *Madras Mail* on certain wonderful results alleged to have been obtained from hybrid coffee trees in the Wynaad. The article itself is a very readable one, but we confess we are a little sceptical as to the anticipated results. Who that remembers the great fuss made some years ago at Mr. Brooke Mockett's wonderful Mysore hybrids, and the manner in which their expectations were negatived by results, will have the courage to expect anything very different from the Wynaad hybrid." Now, I hope that the writer of these most unkind remarks will be surprised to hear that Mr. Brooke Mockett's carefully conducted experiments have given results which are of great interest and importance to the planting community. At present there are numbers of very promising three and four year old plants which are in every way like the parent, and in addition to these there are other distinct strains which will contribute very considerably to sustain interest in the second phases of the experiment, in connection with which arrangements are already in progress on an extended scale.

"I have a very delicate matter to deal with personally. Over twenty years ago I wrote a small pamphlet and subsequently embodied my views regarding the disease-resisting power of plants raised from carefully selected seed of hardy varieties, together with conclusions relative to the beneficial effects of improved cultivation and the use of certain manurial preparations. After sixteen years, I have now to acknowledge that *Hemeleia* continues to cause losses which vary in accordance with the season at which it appears and the arrangements made to modify the effect of its attack. I have visions of being asked to remember the "great fuss" formerly made about my own very humble experiments. My position is a most unenviable one, as I cannot possibly prove that my expectations have not been absolutely "negatived" without laying myself open to be styled egotistical or presumptuous. Under the circumstances, I prefer to

accept all risks and confidently look for every possible consideration. I have absolutely no cause for regret in regard to what I wrote or suggested many years ago, and hope to be able to afford evidence that the introduction of a new strain of coffee into the province has produced results which are now widely known and appreciated. Although some of the manurial preparations have not been accorded a more extended trial owing to their great cost of the liability of their effects being seriously influenced by the variations of climatic conditions, still, thanks to the ability of my brother planters, ways and means have been adopted which, although not calculated to provide an absolute remedy for the pest, have most appreciably modified and restrained its injurious effects. Among these may be classed : Improved methods for maintaining the soil in good physical condition, by efficient working, draining and mulching. Various improvements in the raising of plants from selected seed of hardy varieties in baskets and in nurseries formed on virgin jungle soil and well drained situations. The use at certain seasons of suitable and well-balanced manures containing those constituents which frequent crops of coffee are known to remove from the land. The careful selection and arrangement of suitable shade trees and the removal of those which exert a pernicious influence on the coffee or on the mechanical condition of the soil. The maintenance of efficient systems of pruning and handling suitable to the requirements of soil, elevation, aspect and locality, and regulated so that, at the time when the pest usually appears, the shoots may be of that description which local experience may have indicated as best calculated to stand its attack. The careful adaptation of all operations of routine culture to the requirements and changes of season, particularly in regard to the amount and distribution of rainfall.

"In 1880, as a delegate to the Representative Assembly at Mysore, I had the honour to make the following remarks :—" As the industry is one of the oldest and most important in the province, I may be permitted to give a brief account of the principal improvements which have been effected within the last two decades. After years of careful study, it was found that not only was the description of coffee plant which was originally cultivated unfitted to the climatic conditions of certain localities, but that many of the forest trees which have been left in the clearings as shade or shelter had a detrimental, or even in some cases a pernicious, effect on the coffee around them. A perfectly new system had, therefore, to be adopted. About seventeen years ago four South Mysore planters introduced experimentally the carefully selected seed of the Nak Nad variety of coffee from Coorg, and to this chance experiment must be attributed the yearly increasing prosperity which now attends the industry. Observation having clearly proved to both the European and Native proprietors that this strain of plant was eminently well-suited to the soil and climate of our Mulnad, a very large nnmber of new estates were rapidly opened up, and in addition to this, many of the old plantations were systematically re-planted and are now actually in better condition and more remunerative than they have ever been before. The great problem of shade has also been satisfactorily dealt with. Objectionable trees have been removed in great numbers, and millions of young plants of carefully selected and approved varieties have been propagated and established instead of them. It will, therefore, be seen that the Mysore planters in many cases have not only had to remove their original coffee, but have also had to grow a new forest covering for the Nak Nad variety of plant which has been introduced and which now holds on to the prospect of increasing prosperity for years to come.'"

Mr. R. H. Elliott in "Gold, Sport and Coffee Planting in Mysore," at page 311, makes the following statement :—" I have alluded to the tradition of coffee being first introduced into Mysore by a Mussulman pilgrim about two hundred years ago, and the species of coffee that was introduced then or at some subsequent period was the only one known in Mysore when I entered the province in 1855. This plant was finally called the 'Chick' variety of coffee, and the name was taken, I believe, from the town of Chickmaglur, which lies close to the original Mysore home of the coffee plant. The variety had thriven well and promised to do so for an indefinite period of time, but towards the end of 1866, and during the three succeeding years, we had dry, hot seasons which caused a general attack of the borer insect, and at the same time there occurred a general decline in the constitution of the trees which, though no doubt greatly hastened in the majority of instances by the borer, has never been explained, and so serious was this decline that, had we been dependent wholly on the original Mysore variety, it is the opinion of one of our most experienced planters that, to use his own words, there would have been an end to coffee planting in My except in the case of a few elevated tracts on the Bababudan of hills. But, most fortunately for the planters, the Governmen the people of Mysore, Mr. Stanley Jupp, a South Mysore pla took a trip in 1870 into Coorg, which lies on the south-west fro of Mysore, and was so favourably impressed with the vari coffee grown there that he recommended that experiments shou made with it in Mysore, and in 1871 experiments on a conside scale were made with carefully selected seed which was obt from Coorg by Messrs. R. A. and Graham Anderson, Mr. B Mockett and Mr. Arthur Jupp. The experiments turned remarkable success, the young plants raised from the imported grew with extraordinary vigour, and it was soon found that th variety would grow and crop well, and even on land on whi attempts to reproduce the 'Chick' variety had utterly failed. the sinking industry rose almost as suddenly as it had fallen and abandoned estates, and every available acre of forest, and scrub, were planted up, and land which used to change han from five to ten rupees an acre was eagerly bought in at twelve these amounts." In the year 1875 I had the honour, as Hon Secretary of the Mysore Planters' Association, to submit fo information of Government a report setting forth the conditio prospects of our enterprise, from which I quote as follows :— realisation of Halut, or excise tax at one rupee per cwt. on produced from 52,888 acres of land granted in the North Asta Division was as follows :—

	RS.	A.	P.
1869-70	23,007	1	8
1870-71	23.741	0	6
1871-72	20,564	13	2
1872-73	21,903	15	5
1873-74	13,454	7	10 "

"These figures show that only 5,133 tons of coffee were proc in Southern Mysore in the five years under notice, or on an av of 1,026 tons per annum. Valuing this at Rs.700 per ton, wh more than the average price for plantation and native coffee, w that the produce from what may be roughly classed as half lands granted for coffee in the province (as comparatively few es then existed in the other division) represented an annual n value of Rs.7,18,200, which, allowing a similar amount fo Nugger Division, would only give an aggregate of Rs.14,36,40 the whole of Mysore. Owing, however, to the immense extensi cultivation and the success which attended the introduction Nak Nad variety of plant, the total yield of coffee in the year represented a gross value of 70 lakhs of rupees. The great stin afforded by the gracious act of His Highness the Maharaja promptly sanctioning the introduction of an acreage assessm coupled with permanence of tenure, is therefore most clearly fested, and the money realised during the period of increased perity having been carefully expended on the work of fu developing the industry, the official reports issued in 1893 p that Mysore was on a level with Coorg, and the two provinces classed together as producing more than two-thirds of the amount of coffee exported from Southern India. I can never s ently thank Mr. J. P. Hunt, of the Glenmore Estate, for the ca so kindly bestowed in providing Nak Nad seed for the first ex ments, or Mr. Mangles, of the Hallery Estate, for his courte supplying me with seed from his Coosgoor and Santicoopa prop in subsequent years. I have the honour to express the hope t have demonstrated the fact that the coffee industry in Mysore unworthy of the fostering care and solicitude which the Durba always been pleased to evince, and that both in regard to the which continue to injuriously affect the coffee, arecanut, carda pepper and cocoanut plantations, and the many other problems still await solution connected with the agricultural industries province generally, it is essentially necessary, if prosperity is maintained, that the services of a competent Agricultural Ch should be rendered available for guidance and advice in all matt difficulty. I am quite prepared to be told that the amount of exported from Mysore has fallen off during the last few years. is perfectly true, but the cause is easily ascertained by a glance rainfall register. We have in fact during the last three experienced similar conditions as those which have prevailed in land, and which "Dagonet" has rightly called "meteorol atrocities." The distribution of rainfull has a far greater effe agricultural prospects than the quantity, and conditions anal to those which have caused a famine in Bengal have not been wa

their effects on equally sensitive industries in other parts of dia. I am delighted, however, to state that on all properly culti-ted estates, the coffee this year is looking magnificent, many of e oldest fields being among the best.

I prepared the first two pages of this paper as my address on this bject on this occasion, but as I have given nearly every member a py, I venture to ask you to consider it as read and thus save your me. But there is one point I desire to press upon this meeting enerally, and that is when Mr. Marshall Ward, the great cryptoga-ist, visited Ceylon some years ago, he drew up a report, the con-uding words of which were to the effect that the life history of this rasite had now been traced through all its phases and nothing now emains to be done except to carry out all further investigations in e most elaborately furnished laboratories that Europe could afford. venture to think, gentlemen, that this is the point at which investi-ations ought now to be commenced, and I feel certain from the tention which I have paid to the appearance of these plants during rying seasons of the year that it will be found at any rate in the y climate of Mysore that we only get leaf-disease at certain sea-ns, and these seasons are very short in duration. I think that ith the help of some scientific authority a way might easily be und for remedying the evil. I have the most entire confidence in hat I am saying because, during a long residence in that district, have noticed that leaf-disease appears under certain conditions and oes not appear under certain other conditions, and when once it has ommenced we can almost accurately decide how long it is going to st or our prospects of getting rid of it quickly. One point I should ke to dwell upon with the greatest emphasis, to clear away for ever l idea that we, in Southern India, plant under conditions that offee was cultivated in Ceylon. There they had a warm climate ith almost incessant humidity, so that once the parasite took effect lasted for .months. That is impossible in a climate like that of outh India, except perhaps in some particular situations. As far s we are concerned we get an attack once or twice in a season and ien only very temporarily. I feel sure that if the Government of Iysore carry out their benevolent intention of giving us a scientific an on whose guidance we can rely we will find that all growers of offee, sugarcane, arecanuts, cocoanuts and cardamoms, and in fact ce and all other cereals will have gratefully to acknowledge the enefits accorded in the scientific advice which would enable them o get rid of this pest. (Applause.)

Mr. PARSONS (Coorg):—With reference to the proposal passed last ear on page 86 of the proceedings, I beg to propose that it be put nto force, and that Mr. Cameron's services be lent to us with a view o investigating and reporting on the different kinds of coffee he will ee in Coorg. The result of his investigations will be carefully eported to the U.P.A., as it may be useful in deciding what steps ay be taken another year by some other Associations. We ask you ow to endorse that Resolution and that the Secretary be instructed, s soon as possible, to take such steps as may be found necessary to ecure to us Mr. Cameron's services, and that the Rs.1,000 voted ast year towards the expenses may be made available if required.

Mr. J. W. HOCKIN seconded the motion.

Mr. HARRIS asked what was the result of the representation on this ubject to the Government of Mysore last year.

THE CHAIRMAN:—The whole matter was contingent on Government nd the Associations subscribing. We took the whole five agri-ultural subjects together, and as the Associations did not feel nclined to subscribe, nothing further was done in the matter.

After some further remarks, the matter was considered in Com-nittee, when the following Resolution, proposed by Mr. Parsons nd seconded by Mr. Hockin, was carried and was afterwards con-irmed in general meeting:—"That the Resolutions passed last year or obtaining Mr. Cameron's services be put into force and that, if ermitted, he be deputed to visit Coorg, the results of its investiga-ions to be reported to the U.P.A., provided his expenses do not xceed Rs.500."

AGRICULTURAL CHEMIST.

Mr. J. A. HARRIS (S. Mysore) opened the discussion on this subject n the following speech:—

I greatly regret that it was found impossible to carry out the cheme proposed last year, but the discussion that then took place s bearing fruit. The apathy shown by some districts was little hort of astounding, and the lack of interest manifested by the overnment of Madras and some of the Native States was, to say the east of it disappointing. The Government of Fort St. George has xhibited such sympathy towards planters that it did not seem out of the way to expect that in this matter the same would be extended to them, and in view of the important position science holds in relationship to agriculture, it is strange that such should have not been the case. All the world over during the last 50 years agriculture has benefited enormously by Science; in India, perhaps, less than elsewhere, due to fewer opportunities having been offered. Throughout Europe the stress of competition has forced farmers to abandon their old practices and to conduct their agricultural operations on strict scientific principles. India, like the rest of the world, is feeling the strain of competition, and the planting industry, as represented by its various products, proba-bly more keenly than any other, so much so that a cry has gone forth for scientific help, by which it is hoped that both quantity and quality of crops may be improved. But India has another problem to face which is closely connected with agricultural prosperity, and that is the increasing congestion of population, and one of the methods suggested by which the pressure may be staved off is by improving the methods of agriculture, and so increasing the food-supply. This is a question of immense moment, but it is one with which the matter now under consideration, viz., the casting of the light of science on agriculture is nearly allied, for though the planting industry does not exactly increase the food supply, it feeds a portion of the population, and it is, therefore, the more astonishing that Govern-ment should not have viewed our scheme with more favour. It is very gratifying to us, Mysore planters, to know that the Durbar has come forward with an offer of help. We were, however, in hopes that they would engage a whole-time man, and the letter from the 1st Assistant to the Resident was the first intimation we had that such was not the case. That letter suggests that a well-qualified man should be engaged for a period of five years for the whole of South India, including Mysore; but though the sphere in which he should work is thus territorially defined, it is not clear whether it is meant that he should devote himself to the planting industry alone or to all agricultural operations. There are three different proposals which might be made. (1) That he should be engaged for the benefit of all agricultural undertakings in South India and Mysore. (2) For the planting interests only of South India and for all agricultural industries in Mysore. (3) For the planting interests alone of South India and Mysore. With regard to the first there is no doubt that the magnitude of the work would render it impossible for one man to do justice to it.

If the 2nd were proposed, the U.P.A.S.I. might justly urge that it would scarcely be within its province to subscribe towards employ-ing an expert who would devote any of his time to other than plant-ing interests. His services might be apportioned between the Mysore State and the Planters of South India, but I doubt if such an arrangement would be satisfactory, and if both interests could be adequately served with the allotted time. The 3rd seems the most feasible. It *might* be possible for one man, in some measure, to fulfil the requirements of the planters of South India and Mysore; in fact this is what was proposed last year, and it will be remem-bered that we failed to get within measurable distance of the sum required—the contribution which the Mysore Durbar have graci-ously intimated they will make, should they acquiesce, can scarcely be expected to be enough to make up the deficiency, and as far as I am aware the bad times we have passed through, and the fact that some other districts have made their own arrangements, render it extremely unlikely that more will be forthcoming than was offered last year. I have, therefore, reluctantly come to the conclusion that a combination between the Mysore Durbar and the U.P.A.S.I. is not practicable, but I am open to conviction and am prepared on behalf of my Association to accept any scheme that may be evolved at this meeting which should promise to work satisfactorily to all concerned. I am, however, convinced that the various agricultural undertakings in the Province of Mysore, on which its prosperity mainly depends, would provide ample work for a whole-time man for a period of years. The pests to which our own particular industry is subject, among which I may mention *Hemeleia vastatrix*, that mysterious fungus we call leaf rot, borer, and some scales and those which have attacked sugarcane, cardamoms, pepper, areca and some of the grain crops, call for investigation and would provide pro-longed occupation for the expert. The improvement in the methods of agriculture opens up a still wider field. It is needless to go over the ground that was occupied last year in pointing out the necessity of ascertaining the demands of the plants, the ingredients of the soil, and the constituents of the manures at our disposal. This was duly emphasised then. But I would like to mention one or two

points by way of illustrating the advantage of having an expert resident among us as opposed to consulting, and having soils analysed by, even say at Home. In the first place, it seems to me that analyses of samples of soils sent Home cannot be as satisfactory as those done on the spot. Then take draining. We are all aware on the one hand that if water is stagnant in the land the soil becomes infertile, and on the other that if drainage be carried to excess the result is an unnecessary loss of nitric acid. In a climate such as most of us live in, heavy rainfall is a feature rendering the circumstance different as compared with dried areas, and a trained man by visiting our estates should be able to give us valuable advice as regards the depth and the distance between our drains. Again nitrates are the dearest of all manure, and especially so to us who import them for the most part from Europe. In spite of this, little recourse seems to have been had to the system of green manuring, whereas nitrogen may be obtained free. A chemist could surely assist here by telling us what system to adopt, and what nitrogen-absorbing plants to cultivate. This might be of immense benefit to the ryot. Another point; the greater part of our chemical manures are imported from Europe. Is it not possible, if we had an agricultural chemist resident in our midst, that he might discover deposits of salts and other substances which would be valuable for manures, which would probably be obtained at half the price we now pay? Thomas' phosphate, which is a bye-product in the manufacture of steel, has been a source of profit to the discoverer, as well as an immense benefit to agriculture. Is it not possible that some of the bye-products in this country might be found to be valuable as manures, or at any rate others now sold as such proved to be useless?

These are one or two points that have occurred to me to prove the desirability of having a resident expert, and the immense scope there is for his employment. I feel assured that there would be ample work for one in Mysore, that the Durbar would be fully recouped for the outlay in due course, and I trust they will see their way to making the appointment for a few years. Let us hope that the eventual outcome may be what the *Madras Mail* foreshadowed in a recent article, viz., an Agricultural Chemist at various stations in the Presidency and one in all the Native States, and should Mysore lead the van, we, her planting community, will be proud of her sagacious foresight. Agriculture in India must, in future, work hand in hand with Science, if she is to compete successfully with other countries. The appointment of one or more Agricultural Chemists would be a move of the highest importance, and might, eventually, by causing improvement in agricultural methods, prove a powerful factor in coping with the demands of an ever-increasing population.

The meeting immediately resolved into Committee, when the following Resolution was arrived at. It was proposed by Mr. J. A. Harris and seconded by Mr. Oliver (N. Mysore):—"That this Association in thanking the Mysore Durbar for their gracious offer would be willing to co-operate with them, but is of opinion that there is ample scope for the employment of an Agricultural Chemist in each of the following areas: the Madras Presidency, Mysore and Coorg, and it proposes to urge this on the respective Governments concerned."

The Resolution was after the luncheon interval confirmed in General Meeting.

Mr. Sprott (Coorg) moved that "in the event of the replies to our repesentations with regard to the appointment of one or more Agricultural Chemists being satisfactory, the Committee be empowered to allot the sum of Rs.2,000 out of the Reserve Fund towards the expenses."

It was seconded by Mr. J. W. Hockin and carried unanimously.

LADY-BIRDS.

Mr. H. O. NEWPORT, in Committee, answered several questions put him with regard to the attempt to import lady-birds from Australia to prey upon the scale pests infesting coffee on the Lower Pulneys and elsewhere. His suggestions for further action are contained in the following Resolutions:—

"That this Association do collect all possible information on the subject of the importation of lady-birds from Professor Blandford and others, and in the meantime await the result of Mr. Green's experiments (in Ceylon) before taking steps in the importation of further consignments, and that as soon as possible a supply of *coccinellidæ* be imported by the most approved method and experimented with in South India." The motion was seconded by Mr. Hockin and carried both in Committee and General Meeting.

In connection with this subject the Chairman proposed a cordial vote of thanks "to the Premier and to the Agricultural Depar of Queensland and especially to Mr. Henry Tryon, the Goverr Entomologist, for the courtesy he showed to our represen Mr. Newport and the assistance they gave in his work in that cou

Mr. EDMISTON proposed a Resolution pleading for further in gations locally. It was seconded by Mr. Knight, but as it tran the carrying into effect of this Resolution would involve expen which could not be made available from the funds in hand, decided to withdraw the proposition.

The subject of cinchona was dropped, as was also the adulter of manures, after a short discussion. Finances was disposed Committee, and then the important subjects of roads and com cation and railway were discussed at some length. Want of forces me to hold over a full report of this until my next. mention that a telegram received from the Editor of the *Madra* announcing that he had ascertained that the Government of viewed favourably the case made out for the planters in the mittee of Enquiry in 1896 and that orders would shortly issu received with acclamation.

ROADS AND COMMUNICATIONS.

THE CHAIRMAN said:—In opening this discussion on Road Communications, I am going to move that this year more de action should be taken in representing the matter to Govern At every meeting of our Association since first it was estab protests have come from the different Associations about th state of their roads, and although, as was the case last ye passed a general Resolution on the subject, I do not think hitherto we have been sufficiently earnest and energetic i matter. I do not know how you are affected individually, but I we may find this out at this meeting, and that it will result in energetic steps being taken to remedy what I believe to be a st affairs disgraceful to the Government of India. Last year we p a Resolution to the effect that the U.P.A.S.I. should back up an complaints from District Associations to their several Governi as to the state of roads. The only Association that took adva of this promised assistance in the course of the year was my Wynaad, and the representation from the Wynaad planters wit additional letter from the U.P.A.S.I. has met with no res whatever. Mr. Hodgson in his speech on the Budget in the M Council pointed out that the great saving in the expenditure Government of India was at the expense of the producers, and in consequence an adequate return should be made to the increased works for their benefit to cheapen the cost of produ by means of an easier access of labour and of the carriage of pro Naturally this led to no result, as the debate was the budget Madras Government and not on that of the Government of I who by their provincial contract rule the expenditure. But I it may have done good service in directing attention to the m and I do think we ought to back it up as strenuously as pos Lord George Hamilton in his speech on the finances of Ind the House of Commons on the 7th June admits that the ba sheet is satisfactory because of the steady rise in the exchange of the Rupee during the last three years. But he does not go explain that this is achieved at the expense of the producer; in he deprecates argument on the subject lest he should be subj to use his own words, as would have been the case in the M Ages, to the stake and the rack. None of us doubtless wish t that done, but we should like to see him invest some of the earned increment of his office in the production of tea, or other industries in India. Then perhaps the individual being affected, we might have broader views expressed. The bi that £2,615,000 are borrowed for the extension of railways, unfortunately a large part of this is for strategic line hopeless and useless wars. If only a very small portion cou subtracted for the maintenance of communications between important producing centres with the ports of exit, it w make but little difference to the total outlay. I believe tha we in Wynaad want is a grant of a few thousands for our lines of traffic, but without it our industry is checked, our c have to pay famine rates for provisions, and we run the risk total cut off of supplies from our chief grain supply from My I am now citing an individual case, particulars of w Mr. Hockin will give you; but if only representatives from Associations will back us up with clear statements of their indiv cases, I think we might do more good than by the desultory c spondence with the Government that we have hitherto carried

Mr. J. W. Hockin (Wynaad) said that as far as Wynaad was con-rned their complaint was that they had a climate that was the me as that of the Nilgiris; but in their case Government was vays willing to back the Nilgiri District Board with liberal grants · communications; but they reversed the policy entirely with alabar. One of their main roads ran half way through the lgiri-Wynaad and the other half through the Malabar-Wynaad. e Nilgiri District Board got a grant of Rs.500 per mile for main-nance of this road, but the moment it crossed the boundary the ant was cut down to only Rs.250. The President of the Malabar strict Board noticed this fact, and wrongly, I think, applied for a nsfer of some of the Niligiri funds to Wynaad. No doubt the lgiri District Board had not got more money than it wanted; but at ought to have been done was to point out to Government that e climates of these adjoining districts was so exactly the me, the Government having recognised the necessity for a grant the Nilgiris ought to have recognised the necessity for a similar ant to the Malabar-Wynaad. If the Madras Government ever ve a small extra grant to the Malabar-Wynaad, it was a very small e, and Government was careful to explain fully to them that they d no right to it, as it was only given as a special case. The overnment of India was in the position of a landlord was much as e State owned a great portion of the waste land of the country, d it ought to be a part of their settled policy to devote a certain nount to improving this property by maintaining communications nd encouraging the extension of cultivation as much as possible. said one of the greatest problems it had to face in the future was provide food for a rapidly increasing population. They recognise e necessity for this in theory; but in practice to reject it for want funds. This was, however, a case in which funds ought to be ade. Take the case of a man with a large estate in an undeveloped ndition. He does not say I am not going to do my duty by it ecause he has no funds; he says, on the other hand, the property is valuable one, and the population on it is increasing, and he gets the oney how he can to spend upon its development. I think we ought to mpress upon the Government of India that though they have got o funds, it is a part of their duty to make the funds to invest in is remunerative speculation the development of waste lands provide for the needs of the rapidly growing population. I am ld, on good authority, that the Punjab Government have been very ccessful in the colonisation of waste lands put under irrigation, but at it was found useless to form these colonies of paupers. It was nly when good cultivators with some means were induced to igrate that the colonies flourished. We planters do employ the auper class very largely. We provide the capital and discipline the auper class, and we should therefore receive all possible encourage-ent from Government as we raise the status of a class which annot form colonies on its own account. What they are doing now in Malabar is throwing more and more of the roads on the District Board, nd doing all they can to get out of giving money for extra grants. he Wynaad was not a new district, but it was developing in a way at urgently demanded better roads. For the transport of coffee might be said that the old fair weather roads served the purpose dmirably, but when it came to tea you must always have good roads, hich you can use all the year round. Under the present policy of arving the Malabar-Wynaad, and refusing to give it proper metal-d roads, the tea industry would never prosper. The Government ight not have the money to embark in a scheme of making new oads through the district, but the least it could do was to see that e existing roads were kept in proper repair. One of the main roads ent into Mysore, and it was through this route that much of their rain came. The road was in such a disgraceful state that the Wynaad Association addressed in June last. They got no answer ll December, when they were asked to send another copy of their etter, as the first had been mislaid. The copy was sent, but the Association had not received an answer yet. That road was now in uch a bad state that the grain carts could not come through.

Mr. H. O. Newport (Lower Pulneys) said he would like to bring efore the meeting the subject of the state of the roads in the Lower ulneys. He had brought the subject before the meeting ever since is district had joined the Association. It was not the bad state of he roads that they complained about, but the absolute want of roads. n October last he, with the Secretary of their Association, were eceived in deputation by H.E. Sir Arthur Havelock at Madura, and ut before the Governor all the facts of the case. His Excellency eplied to the effect that he would take the earliest opportunity of ttending to the matter, and promised, if possible, to sanction the estimate in the present financial year. He was afraid, however, that they would be left out in the cold again, and would have to wait for a another financial year to see the work started. Their request was a very modest one, namely, for a bridle-path, and had been before Government since 1896. They had received promises every year; but none so definite as Sir Arthur Havelock's last year. In spite of that, however, up to the present nothing had been done, and they were still in the position of 1893, having no roads at all. The Chairman's proposition, seconded by Mr. J. W. Hockin, runs as follows: —"That considering it is the fixed policy of the Government of India to spend a certain sum of money each year on Railway extension, that the Government of India be addressed, through the Madras Government, pointing out the paramount necessity of spending certain sums each year out of Imperial funds on opening new and improving existing roads in all districts where a considerable extension of cultivation is possible."

The Resolution was carried unanimously.

Railways.

Mr. H. G. Parsons (Coorg):—Gentlemen,—While we cordially support in every way the Resolution passed with regard to Roads and Communications there was no subject which required more support from them as that of Railway extension. Coorg would long ago have had a railway if it had a road to get to it. Recently the Consulting Engineer for Railways, Madras, had sent copies of a letter addressed to the Government of India, Railway Department, and the correspondence thereon. It was a most interesting communication and they had been asked to give an opinion on it as quickly as possible. He believed the various Chambers of Commerce had also been asked and had already given their opinion thereon. He therefore begged to propose the following Resolution:—"That this Association do support the policy of the Government of Madras as set out in G.O., No. 852, Railway, dated 23rd June, 1898, forwarded by the Consulting Engineer for Railways, Madras, for an expression of opinion, and that the Secretary of the U.P.A.S.I. immediately communicate with him expressing a hope that the subject may be considered at the Railway Conference at Simla in September." If you read the circular and the correspondence that has taken place, I have no doubt that the scheme proposed by the Madras Government may be described as a great one, namely, for the conversion of the Madras Railway from Podanur to Calicut and from Calicut to Cannanore from the broad to the metre gauge. I believe that the Madras Government thinks so much of the scheme that it has stopped the extension of the line from Calicut to Cannanore pending a settlement of this question of the gauge. If this is settled, we may probably then see what we have long looked forward, namely to the continuation of the line from Tellicherry through Coorg to Mysore. If you look into the matter, you will see that the policy of the Madras Government and the Consulting Engineer has been influenced by the present Governor of Madras, who is not new to the wants of the planting enterprise, and has much experience of the necessity for Railways and good roads for the planting interest. A member of our Association said the other day at our meeting to consider this matter, and that above everything the U.P.A. should be emphatic on this subject of Railways and Roads. In fact, he went so far as to say that it should be put before everything just now. If we look at Ceylon we will see that if it was not for their good roads, they would have their tea placed at a more serious disadvantage than it was now. Coorg has always represented her needs in this respect very strongly for the past twenty years to the Government of India, and the reply was that practically that everything came to him who waits. Over twenty years is a good long time to wait, and I must honestly admit from what I see now that I don't think at any time previously has the prospect of a railway been more encouraging than it was now. They had always to meet one difficulty when they had a Conference on Railway affairs. Their position was summarised in a few words, why don't you get private enterprise to give you a Railway. The answer to that was the Railway policy was ruled by the Government of India, and private enterprise was out of the question when so large a part of the country was controlled already by private Companies. We have also so far as Coorg is concerned been twitted with the charge that we have not been consistent in our advocacy of the route to be taken. In reply to this, I may mention we have always supported the extension of a line from Tellicherry through Coorg to Mysore as being the best. But when we have had other proposals before us which seemed feasible, we have supported them. Now that the Madras Railway have taken the matter up under these circumstances,

he asked for unanimous support for the letter from the Consulting Engineer, Madras. Mr. Windle seconded the proposal with similar remarks to those he made at the meeting of the Nilgiri Association recently.

Mr. Graham Anderson opposed the motion as being one in support of a scheme which was in opposition to the proposed Arsikere-Mangalore Railway in which the Mysore Durbar was most interested.

Mr. Parsons having been heard in reply to the effect that the Madras Government's scheme would in no way affect the Arsikere-Mangalore line, the Resolution was put to the vote and carried by a majority, the Mysore delegates refraining from voting for the following reasons:—"As members of the planting community of Mysore we well know the deep interest which the Durbar evinces in regard to the extension of Railway facilities generally, but knowing as we do that the Government of Mysore has in no way relinquished the investigation of the alignment for a Railway to join Arsikere with the port of Mangalore, we cannot possibly vote on the subject under discussion without first consulting the Dewan of Mysore."

REGISTRATION.

The Meeting in Committee then proceeded to further discuss the Articles of Association, terminating the sitting for the day at 6 P.M.

LAST DAY.

BANGALORE, 11*th Aug.*—The delegates to the Fifth Annual Meeting of the United Planters' Association met this morning for the last time to finish the agenda and to formally bring another very successful meeting to a close.

REGISTRATION.

The following Resolutions on this subject, the outcome of the deliberations in Committee, were put in open meeting and unanimously passed:—"That the Secretary be desired (1) to prepare the Memorandum and Articles of Association of the proposed Incorporated Associations according to the drafts revised at the meeting, (2) to apply to Government for a license to register the Association under Section 26 of the Indian Companies Act (VI. of 1882), and (3) to duly register the Company not earlier than May, 1899."

II. "That on such registration being effected, the Chairman, Vice-Chairman, Committee and Secretary of the U.P.A.S.I. for the time being shall become the Vice-Chairman, Council and Secretary, respectively, of the Incorporated Association, and that the continuance of the work done or in progress on the part of the present Association shall be entrusted to the Incorporated Associations."

III. "That the registered offices of the Incorporated Association shall be the offices of the Secretary for the time being."

IV. "That a design for a common seal be prepared and submitted to the Committee for approval, and after approval be adopted as the common seal of the Incorporated Association."

V. "That all books, papers and moneys of the present Association be made over to the Incorporated Association as soon as registration is effected, and that the Committee and Secretary be desired to do everything in their power to carry out the aim of the present Resolution, which is that the work of the present Association should be made over to the Incorporated Association and by it carried on without breach of continuity."

The Resolutions were put *seriatim* and carried unanimously.

IMPORT DUTY ON CHEMICAL MANURES.

The Chairman said that yesterday he was not able to lay before the meeting the necessary information as to what was about to be done on the subject of exempting certain chemical manures from import duty, as he had not the papers with him. He then told them that he had been in correspondence with the Revenue Secretary, Government of Madras, and had learnt that it was the intention of the Government to include certain chemical manures in the list of imports exempt from duty. These were muriate of potash, sulphate of ammonia and kainit salts. The Government had, however, declined to include nitrate of potash because it was a product of the country and was largely used for purposes other than that of manures. He then submitted the matter to his agents at Calicut, and they had suggested the addition to the list of exempted chemical manures of phosphate of ammonia and sulphate of potash. Sulphate of potash, they said, should be included, because, though very little was at present imported, it was quickly growing in favour and contained 90 per cent., whereas kainit only contained 53 per cent.

The Meeting then resolved into Committee to consider the su

On resuming General Meeting again, Mr. Fred. J. Parton pro and Mr. J. A. Harris seconded, "that the U.P.A. reque Government of India to exempt from duty all artificial manure the exception of nitrate of potash and any others which are l used for purposes other than manurial." The last portion Resolution was suggested as an amendment by Mr. Robert Gor (Shevaroys), and was accepted by Messrs. Parton and Har included in the Resolution, which was passed unanimously.

Mr. G. R. Oliver (N. Mysore) proposed, and Mr. J. A. seconded, "that the Traffic Managers of all Railways in So India should be addressed with reference to the carrying of ar manures at manure rates instead of at chemical rates whic sometimes charge on certain manures." The Resolution was c

CROP ESTIMATES.

The Chairman said that the Secretary had received as long October last a letter from the Indian Tea Association addres the Travancore Planters' Association and which had been s the last Association to the U.P.A.S.I. The letter contain enclosure from Messrs. Gow, Wilson and Staunton, which p out that the Committee of the Indian Tea Association in m crop estimates and despatching monthly telegrams did not i the figures from Travancore and the Nilgiris. The Commit the Indian Tea Association accordingly requested that arrange might be made to send the figures for these districts dir Messrs. Gow, Wilson and Staunton, and at the same time Committee of the Indian Tea Association for informatio guidance.

The Tea Association connected with the U.P.A.S.I. agr supply the figures of crop estimates as requested.

THE MADRAS FOREST ACT.

Mr. E. G. WINDLE, in opening the discussion on Section 56 Madras Forest Act, said: "I will first read the section which as follows:—'When in any proceedings taken under the or in consequence of anything done under this Act, a qu arises as to whether any forest produce is the property of G ment, such produce shall be presumed to be the proper the Government until the contrary is proved.' It is no doub cult for a Forest Ranger or peon meeting a native with a l grass, bamboo, wood, &c., to say that such things are Gover property, however strongly he may suspect it, and in any case would be required before the assertion could be proved, and i meantime the suspected party, probably a travelling cooly, a derer of some description, goes on his way and vanishes fro scene. Therefore, arbitrary as this section may seem, we admi there is good reason in certain cases for its use; in fact, it is similar in its operation to the Coffee Stealing Act by whic possessor of coffee may be called upon to prove his ownershi is obvious, however, that such a section as 56 was never inten be put into operation on the respectable resident, or whether a European planter or otherwise, and until lately in the cou over twenty years' planting experience in various districts, I c recall any case of gross abuse of this section. It has been a used as a means of petty blackmail by forest guards, but I d know that these cases are more common than the exactions by officials elsewhere. I have lately come across a case, however, shows to what an extent this section may be misused. I wi give any names, as I am not seeking your sympathy for an indi case, but I ask for your support in endeavouring to get the s put into such a form that gross abuse of it may no l be possible. A Forest Ranger accused a planter, a Eur gentleman, of cutting reeds in a Government forest. The pl who, I may mention, had specially obtained permission fr neighbour to cut the reeds in question, and who had accord done so on this neighbour's land, denied that he had done wh was accused of, whereupon the Ranger told him that the place the reeds were cut must be shown at once. The planter, wh very busy, said that he could not accompany the Ranger informed him that though reeds had been cut on Government yet some thatching grass had been taken. The Ranger went and the planter's next news on the subject was a letter fro District Forest Officer saying that he would compound the o of cutting reeds and grass on Government land for a certain and if the money was not paid, the Magistrate would be instr to take the case on to his file. The planter replied stating reeds had been cut on Government land, and was ready to pay

er sum was considered right for the grass, which he had him-f pointed out to the Ranger. He also said that he was ready show the place where the reeds had been cut to the District rest Officer or any official whose position guaranteed that the arge was not frivolous, pointing out that Section 56 of the rest Act on which the District Forest Officer took his stand d the planter open to his time being at the mercy of any tty official. The reply to this was a summons to appear before Magistrate in the headquarters station, some 60 miles off, hin an impossible time. In addition to this, and as showing the eat drawback that may follow such arbitrary proceedings, I may ntion that in this particular case the planter was in the middle of planting for the season, and was putting out plants at the rate some ten acres a day. Planters can well imagine the damage to estate which might have resulted had he been compelled to leave h important work for certainly not less than four to five days. rtunately, it was not *possible* for him to attend in time, and he lorsed the summons to that effect. There was some talk of uing a warrant for his apprehension; (I shall remind you that se cases are criminal and not civil,) but better councils prevailed, tunately, and the case was posted to a later date. I should like point out here the very anomalous position which may be occupied the Collector of a district in these matters. The Collector is the cial head of the Forest Department in his district; as a matter of t, the letters in this case were headed "Collector's Office," yet h a European who in a criminal case can only be tried by a ropean, the Collector is liable to be judge of his own case; in the mple in question, the Collector, who nominally had issued the ters on the subject, *was* to try his own case, and, therefore, very perly no doubt actually had to refuse to discuss the facts of the tter with the aggrieved parties. I will say nothing further ut the special example which I have brought forward. As I said ore, I am not trying to enlist your sympathies for any individual. ere are other points in this particular case which would make it pear far worse as an arbitrary exercise of power than I have wn it to be, but as these do not bear upon the principle of the tter, I omit them. I moved that this Association address the dras Government with the view of having Section 56 of Madras V. of 1882 so revised that it cannot be unnecessarily employed inst respectable residents who can at any time be reached by the inary processes of the law. I don't think there is any necessity me to say much more on the subject. I am not asking for one for the European and another for the native, or for one law for rich and another for the poor, but merely that it should not be sible for Forest officials to cause great unnecessary trouble and ense to responsible and respectable men."

Ie accordingly moved: "That this Association address the dras Government with the view of having Section 56 of Madras V. of 1882 so revised that it cannot be unnecessarily employed inst respectable residents who can at any time be reached by the inary processes of the law."

he motion was seconded by Mr. J. W. Hockin and carried nimously.

Shipments of Tea by the S.S. *Nurani*.

Ir. W. L. Edmiston brought this subject up before the U.P.A. mentioned the facts of the case, which were the same as those orted recently at the meeting of the Nilgiri Planters' Association. ne further particulars were elected in Committee, and the follow-resolution moved by Mr. Edmiston and seconded by Mr. H. M. ight was carried:—"It having been brought to the notice of this ociation that a large quantity of tea shipped from the West st Ports by an Asiatic Steamer on Clean Direct Bills of lading London has been detained at Bombay pending a guarantee by shipper against all loss by the carrying lines, this Association do rd their opinion that the action of the Carrying Companies is e unwarrantable."

Votes of Thanks.

Ir. J. W. Hockin proposed a cordial vote of thanks to Mr. erod for the careful and efficient manner in which he has attended our business during the past year, and also to Mr. Ronaldson his able conduct of our business during Mr. Ormerod's absence. Hockin said all who had had experience in their business would ise the extreme importance of having a man in charge of the e who combined extreme vigilance and industry with ability. Mr. Ormerod they had such a man, and he could assure Mr. erod that they were all much obliged to him for having looked after their business. During the part of the ten years that Mr. Ormerod was away, Mr. Ronaldson took charge of the office, and they had the Chairman's testimony and they could not have better testimony of the ready way in which Mr. Ronaldson picked up the thread of their business. I therefore have much pleasure in proposing the vote of thanks referred to above.

Mr. H. G. Parsons seconded the motion.

The vote of thanks having been passed with acclamation, Mr. Ormerod acknowledged the compliment in a few suitable terms.

Mr. Graham Anderson proposed a vote of thanks to the Chairman. He said:—"I cannot expect to find words which will adequately give expression to our feelings of appreciation of the kindness, courtesy, and tact which have characterized the conduct of the meeting by Mr. Romilly, our Chairman. I, therefore, propose that a most cordial vote of thanks be accorded to him not only for all he has done, but for having so generously undertaken the duties of our chief for another season."

The resolution was seconded by Mr. Harris and carried with enthusiasm.

The Chairman's Reply.

Gentlemen,—I am very much obliged, indeed, to Mr. Graham Anderson for the very kind way he has expressed himself, and to you for the way in which you have received it, but you can't add anything by words to the compliment that you have already paid me in again electing me unanimously as your Chairman. I assure you I feel it deeply. There is a good deal of work attendant on the office, but except for this speech-making, which I utterly abhor, I must admit I rather take the responsibility and the work. You may have noticed that Mr. Maclean said the other day, in the House of Commons, that the Viceroy could not order up his dinner without first telegraphing to the Secretary of State to know if he was wanted any more. Well, it is very much the same thing with myself and Mr. Ormerod. I do not leave my estate without his sanction. I am glad to think that this Association, year by year, increases in its power to do useful work, and I hope also that the interest taken in its proceedings will increase not only among the large body of European planters who are never present, but also among that very much larger body of native planters who, for the last two years, have not even been represented. Apart from the political business which we do at these meetings, these interchange of ideas that takes place on all planting matters among gentlemen coming from distances so wide apart and so different a climate and other respects must be of benefit. The informal discussion that we had with Mr. Cameron on the subject of leaf-disease and of improvement of the strain of our coffee was most interesting. It will be very clever of Mr. Bremner if he is able to turn out a connected report of what took place. I noticed once or twice, when more than two gentlemen were speaking at once, a look of hopeless resignation that the pencil became idle. I will take this opportunity of thanking him for the unflagging attention with which he has followed our debates, the debate that arose on the Currency question showed considerable diversity of opinion as to the course which I ought to have adopted. But I am glad to think that my conduct was not so much directly censured, as that was considered presumption on my part to suggest any line of action to the Government of India. Now, Gentlemen, excessive modesty was one of my vices, but I am glad to think that I have lived it down. I now have the courage of my opinions, and I would put them forward so long as I knew that they did not clash with the vast interests of the community which I have the honour to represent at any hazard. I am sorry that Mr. Hodgson's statement for the Commission is not already in your hands. I think you will all admit, when you get it, that it is a most forcible and lucid exposition of our case. We have to thank the Editor of the *Madras Mail* for his courtesy in having gained for us such early information on the subject of the Committee of Enquiry. From the telegram I read to you last night, it is evident that we shall shortly get Government orders, and it is gratifying, at any rate, to know that we are considered to have proved our case at last.

There is one matter that was not on the agenda paper, so I have had no opportunity of telling you about it, but it is that our Secretary has been in correspondence with Dr. Ronald Ross on the subject of malaria, and has received a most interesting private letter from him, which shows that he is making excellent progress in his investigations. I will now, Gentlemen, delay you no longer, but wish you a year of prosperity. I declare this meeting closed.

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[w. 15-11-98.]

DISTRICT ASSOCIATIONS.

THE LOWER PULNEYS.

Proceedings of the Annual General Meeting held at the Dindigul ub on Saturday, 30th July, 1898.

PRESENT.—H.W. Gerrard, Esq. (*Chairman*), G. Mengel, Esq., H. R. wport, Esq., H. Ludwig, Esq., E. Morgan, Esq., F. R. Gerrard, q. (*Hony. Secretary*).

Minutes of last Meeting taken as read.

Read Notice calling meeting.

The Chairman called on the Honorary Secretary to read the nual Report.

1. **Report.**—The following report was therefore read :—

ANNUAL REPORT, 1897-98.

n accordance with the usual custom, it is now my duty to lay before the Report of our Proceedings during the past season.

I regret the year has been far from prosperous; the coffee crops for 97-98 have been the smallest on record, and there is no doubt this ort fall was mainly due to the damage done by green bug in 1896. r the present season crops are generally speaking good, as far as a ecast is justifiable at this time, though green bug will undoubtedly some damage, and the failure of the S.W. Monsoon has to be taken o account when crops come to be gathered. Except for the green bug, estates generally on the Lower Pulneys and Siroo Mullay Hills are king exceptionally well.

Roads and Communications.—In October last Mr. H. O. Newport and self, on behalf of our Association, presented a petition to H. E. the vernor in Madura, during his visit there, praying Government to pedite matters in connection with the Ahtoor-Kodaikanal Ghât Road. s Excellency promised to take the very earliest opportunity of attending this particular want of the Lower Pulneys, and, if it were possible, to nt the estimate in the present financial year. I am not at all sure t this has been done. I fear we are to be left in the cold until another ancial year comes round.

Our modest request for the construction of a bridle-path *only* has been fore Government since 1893, and every year since promises have been de, but nothing done; and I remember the only request the landowners d ryots of the Lower Pulneys made to the late Mr. G. P. Clarke, when was carrying out the settlement of these hills, and enhanced the land essments to nearly double what was being paid previous to 1892, was t Government would give them better means of communication with plains, as a slight compensation for the increased taxes they would be iged to pay in future.

n spite of all representations to Government to construct one decent h on to the Lower Pulneys, these hills (except for the ill-kept path m Ardaloor to Punnaputty) remain practically in the same condition as the days of Noah, but we still hope that Sir Arthur Havelock will fil his promise, and that a grant will be made towards the construction this path in the present financial year.

Railways.—Our Association sent a petition in March last, signed by leading merchants, planters, and landholders of all the towns and ge villages between Dindigul and Calicut, praying Government to give ir sanction to the early construction of the Dindigul-Palghat line. reply, we were informed "that the subject continues to receive the nest attention of Government, and that the bringing of the project to ractical issue may not now be very far off."

This line as we all know will pass through a rich and populous country, l will be the most direct line of communication between the Madura trict and the West Coast.

I understand the S.I.R. Company are prepared to at once commence construction of this line, and are only waiting the sanction of vernment. Why this is not given appears to me to be just one of those ny instances where we find the Supreme Government overlooking the ims of this Presidency in Railway extension.

I may mention that this line was strongly recommended by the Railway mmittee in 1873, and by the Famine Commission in 1877 or 1878. A arter of a century has now passed, and the project is still under sideration.

Lady-birds and Coffee Scale.—The green bug which, owing to its ages caused such losses to our crops, attracted a good deal of attention, l was brought prominently to notice by Mr. H. O. Newport in some y written pamphlets, and a lecture at the last annual meeting of the P.A., in which he so clearly pointed out the truly serious state of airs on our hills. It resulted in Mr. Newport being sent to Australia import lady-birds for exterminating all scale pests.

Mr. Newport left our hills for Australia on 28th January, and returned 20th June with a consignment of about 4,000 lady-birds, but unfortu-ely they did not survive the voyage. On opening the cases on Pillavaly ate the lady-birds were found to be dead, and from his official report to the U.P.A., dated 14th July, he is apparently unable to account for the complete failure of the experiment, though no doubt he left no stone unturned to bring this delicate experiment to a successful issue, and I am sure, with him, we all deplore the failure.

This report, together with all correspondence that has passed on this subject, I have circulated to all members of our Association.

No planter who has not seen the green bug on coffee can form the least conception of the awful damage they do.

To state briefly. In 1896, when the bug first appeared on our coffee, about 30 per cent. of the crops were destroyed; in 1897, though the bug was not so bad, the wood was so vitiated that the average crop from every 100 *acres* under cultivation did not exceed one ton. This year the bug is bad again on some estates, and it remains to be seen what loss of crop can be put down to its ravages.

To exterminate this pest we *must* introduce its natural enemy.

Speaking of lady-birds, Professor Koebele, in his report to the Hawaiian Government, says "*when once introduced are an everlasting benefit to the country where introduced.*" Mr. E. E. Green, Honorary Government Entomologist, Ceylon, is getting a consignment of lady-birds from the Cape sent to him in a Wardian case. If his attempt proves successful, efforts will be made by the U.P.A. to obtain experimental supplies from him, and we might, as suggested by Mr. Newport, get another consignment from Australia, especially as Mr. Newport points out the cost will be so small. However, this is a question which is to be discussed at this meeting, and I trust we will be able to decide upon some scheme to be placed before the U.P.A.S.I. to get another consignment of lady-birds.

Our warmest thanks are due to the Chairman, and Secretary, U.P.A., and to the Hon'ble Mr. H. P. Hodgson, for the prompt action taken by them in sending Mr. Newport to Australia, and in their getting the support of Government to the scheme. Our thanks are also due to those District Associations who assisted us with funds, especially the Nilgiris.

Postal.—I fear there is very little hope of a Post Office being opened at Ardaloor, as the Postmaster-General points out that the value returns will not cover the cost of upkeep.

Cattle Trespass on the Lower Pulneys and Siroo Mullay Hills.—This matter has been referred to the Collector.

Taluq Board.—Mr. H. O. Newport resigned his seat on the Taluq Board in January last, and as none of our members cared to stand for election in his place, we are now unrepresented.

U.P.A.S.I.—For the current year we decided to subscribe one anna per acre on all coffee under cultivation towards the U.P.A. Fund. This sum amounted to Rs.61-6-0. But as our Association promised a minimum subscription of Rs.75-0-0, the balance Rs.14-10-0 was met from our current funds.

I need not here touch on any of the subjects at present engaging the attention of the U.P.A. They will hold their meeting in Bangalore next week, when all matters of the deepest interest to the planting community will be fully discussed.

General.—We have twelve members on our roll and six honorary members.

Our labour supply has been fair throughout the year.

The rainfall was below the average, the N.E. Monsoon of 1897 being light, and the S.W. Monsoon of 1898 a total failure.

The health of the district has been fairly good, except for a bad outbreak of cholera during April and May. I think I have touched on all matters which we had before us during the past season.

The accounts show a balance of Rs.19-12-3 to credit.

I now place my resignation in your hands.

FRED. R. GERRARD,
Hon. Secretary,
L.P.P.A., Dindigul.

Mr. Mengel *proposed*, and Mr. Morgan *seconded*, the adoption of the report. *Carried.*

The accounts having been examined were passed.

2. **Lady-birds and Coffee Scale.**—*Proposed* by Mr. Mengel, *seconded* by Mr. Morgan, and *carried*, that it would be advisable to get over another consignment of lady-birds from Australia, and leave arrangements in the hands of the U.P.A.; and suggests that inasmuch at it seems that the failure in bringing the lady-birds alive to Pulneys originated between Colombo and Dindigul, the birds be thawed out on board in Colombo harbour, and put into fresh boxes provided with coffee scale from the Lower Pulneys for them to feed upon, and in this manner conveyed to the hills. The chances of success would be greater if this plan were adopted.

The Association watches Mr. Green's experiments with interest, and trusts one or other of the schemes will be successful.

3. **Delegate to the U.P.A. Annual General Meeting.**—*Proposed* by Mr. Morgan that Mr. H. O. Newport be asked to represent this Association at the U.P.A. Annual General Meeting, and to use his discretion on any subject brought forward. *Seconded* by Mr. H. R. Newport. *Carried.*

4. **Roads and Railways.**—*Proposed* by Mr. W. H. Gerrard that our delegate to the U.P.A. meeting be requested to again bring forward the question of Roads and Railways, and to point out the apparent apathy on the part of the Madras Government with regard to its repeated promises in this connection. *Seconded* by Mr. H. Ludwig. *Carried.*

5. **Police Station at Kongaputty.**—Mr. H. R. Newport *said*, since as far as this Association knows, the total number of policemen on the Lower Pulneys amounts to nine, which number is evidently entirely inadequate either to protect the large and valuable properties in this district, or to cope with the work consequent on the amount of crime. *Proposed* that this Association do request the Honorary Secretary to state the case to the proper authorities and request that the number of Police be increased, and a station established at Kongaputty. [*Kongaputty is a large village on the hills between the large coffee estates of St. Mary and Munaloor, and is 9 miles from Iyempollium (on the plains), 9 miles from Ardaloor, and 15 miles from Tandigudy.*] *Seconded* by Mr. F. R. Gerrard. *Carried.*

6. **Coffee Stealing.**—*Read* Circular letter from the Secretary, U.P.A.S.I., dated 4th July, 1898.

Proposed by Mr. F. R. Gerrard, *seconded* by Mr. G. Mengel, and *carried*, that each district, with the assistance of the Police, work out its own scheme for the prevention of coffee stealing, as has been done so successfully by the Wynaad Association.

7. **Subscription to the U.P.A.S.I. Fund.**—It was resolved that the subscription to the U.P.A.S.I. Fund for 1898-99 be fixed at Rs.50.

8. **Agricultural Chemist.**—*Read* letter from the Secretary, U.P.A.S.I., dated 23rd July, 1898.

After discussion, it was decided that our Association is not in a position to subscribe towards the salary of an Agricultural Chemist.

9. **Correspondence** *re* "Post Office at Ardaloor"—"Government purchases of Cinchona"—"Dindigul-Palghat Railway"—"Currency"—"The Diamond Jubilee Casket"—*Planting Opinion*—"Registration of the U.P.A.S.I."—"Coffee Stealing"—"U.P.A.S.I. Annual Meeting" were read and recorded.

At this stage the Chairman and office-bearers resigned, and Mr. Mengel was voted the presiding Chairman.

Proposed by Mr. Morgan that the same office-bearers for 1897-98 be requested to take office during the current year. *Seconded* by Mr. H. Ludwig and *carried.*

The meeting closed with the usual vote of thanks to the Chairman.

W. H. GERRARD,
Chairman.
FRED. R. GERRARD,
Hon. Secretary, L.P.P.A.

MARKET REPORT.

COFFEE.

Messrs. R. J. Rouse & Co's Weekly Coffee Report (*July* 22, 1898) says:—A quiet tone continues at Public Sales and the supplies brought forward met a poor demand, a good part being bought in.

About 430 bags East India were offered, chiefly greyish and brownish descriptions, and met very little competition a few lots selling at easier rates.

Costa Rica, which formed the bulk of the sales, sold slowly at 1/- decline for common and greyish grades, but colory Guatemala realised full value.

Futures have been very quiet with only a small business passing, and the market has dropped 3*d.* to 6*d.* since our last closing steady at the decline.

Messrs. Wm. Jas. and Hy. Thompson's Report of the Colonial Markets for the Week ending July 20th, 1898, says:—Bank rate 2½%. Bombay Exchange closes at 1s. 3⅞d. Brazil Exchange 7⅜d. Rupee paper 3½% 63½. Silver 27 7/16d. per oz.

This market has again been very quiet throughout the past week, the unimportant supplies catalogued meeting with a slow demand, except for the very small proportion of fine which sold well. East India was only partly sold at somewhat easier rates. Brazil markets are very quiet.

Daily receipts averaged 10,300 bags in Rio, and 14,700 bags in Santos.

Futures have been quiet and lower, closing at about 3d. to 9d. per cwt. decline, viz.:—Good average Santos in Havre, September delivery, fcs. 35.00, in Hamburg pf. 29¼, and No. 7 low ordinary Rio in New York $5.45.

To-day's London official quotations are:—

	July	Sept.	Dec., '98.	Mar.	M
SANTOS ...	28/6	28/9	29/3	29/9	

We quote:—

Ceylon, mid. to good mid.	96/@107/	Costa Rica, mid. to fine...	6
Do. small to low mid.	80/ „ 93/	Do. ord. to low middling.	4
East India, mid. to good mid...	75/ „ 92/	Jamaica, good to fine ord.	3
Do. small to low mid.	58/ „ 73/	Do. greenish to fine colory...	6
Guatemala, mid. to fine...	68/ „ 98/	African ...	2
Do. good ord. to low mid...	52/ „ 67/	Columbian, ordinary ...	3
Salvador, good ord. foxy greenish...	37/ „ 41/	Do. good ord. to low mid...	3
		Do. mid. to fine...	6

Receipts in Brazil to 20th July compare as follows with years:—

	1897-98. Bags.	1896-97. Bags.	1895- Bag
RIO	155,000	207,000	203,
SANTOS	245,000	335,000	269,
	400,000	542,000	472,

In Sale—

711 bags East India. { 286 bags Mysore, small part sold. 50/ ; 398 bags Neilgherry, partly sold. 44/ ; 27 bags Shevaroy bought in.

60 bags Wynaad Liberian 17/
6,993 bags Costa Rica, part London cleaned, part sold ... 28/
874 bags Guatemala „ „ „ ... 28/6
160 bags Salvador 43/6
95 bags Nicaragua, part London cleaned 37/6
515 bags Vera Paz „ „ part sold ... 36/
55 bags Mexican „ „ 45/
2,570 bags Columbian „ „ chiefly sold ... 27/6
80 bags Imitation Java from Antwerp bought in.
128 brls. 182 bags Jamaica, part London cleaned, partly sold 26/

On quay terms:—

100 bags washed Rio bought in.

Landed last week ... 932 *tons. Deliveries* ... 881 *tons. Stock*...19,5
Do. last year ... 538 „ „ ... 738 „ „ ...14,0

TEA.

Messrs. Gow, Wilson and Stanton's Indian, Ceylon, and Java Tea dated July 22nd, 1898, says:—

QUANTITY BROUGHT TO AUCTION IN LONDON FROM 1ST JUNE TO DATE.

	Indian.	Ceylon.	Jav
1898-1899...	64,242 packages.	177,757 packages.	5,377 pac
1897-1898...	72,376 „	202,973 „	6,672

7,069 *pkgs.* INDIAN
26,213 „ CEYLON
895 „ JAVA
} Total 34,177 packages were offered in auction this week.

The following table shows that during the first six months of thi the exports from Ceylon have been nearly one million pounds mor last year. It is pleasant to note that owing to the expansion in F Markets not only has this increase been diverted from London, bu ments to the home market are two millions less than during the period last year. The great increase in the shipments to Russia, Au and America is a most gratifying feature.

Exports from Ceylon from 1st January to 30th June, durin years 1898, 1897, 1896 and 1895.

	1898.	1897.	1896.	
United Kingdom ...	47,992,114	50,132,235	48,897,533	45,5
Austria ...	6,812	1,755	28,714	
Belgium ...	6,110	5,895	19,147	
France ...	34,805	45,066	37,726	
Germany ...	150,287	144,696	45,075	1
Holland ...	6,846	14,505	3,889	
Italy ...	2,450	3,400	6,777	
Russia ...	1,198,555	176,257	165,657	1
Spain ...	20,150	9,100	29,800	
Turkey ...	10,391	4,220	10,692	
India ...	557,762	349,853	539,315	4
Australia ...	7,312,110	6,419,361	5,751,452	4,8
America ...	804,465	423,877	262,238	2
Africa ...	213,356	111,787	45,264	
China ...	453,021	259,705	86,603	1
Singapore ...	26,554	13,401	43,377	

		1898.	1897.	1896.	1895.
Mauritius	...	7,300	—	48,884	71,799
Malta	...	81,129	39,110	67,800	22,795
Sweden	...	18,534	25,140	—	—
Total lb.	...	58,902,751	58,179,363	56,089,943	51,667,796

Indian. Again supplies have been small and insufficient to attract buyers. A few fine parcels of Darjeeling Tea were well competed for, but the bulk of the offerings sold at irregular prices. The official wire from Calcutta gives exports to U. K. for the first half of the month as 1,600,000 lb., against 6,550,000 lb. last year. Exports to U. K. from 1st April to 15th July, 18,097,000 lb., against 16,499,000 for same period last year.

Week's avg. of New Season's Tea sold on Garden Account, 1898, 2,978 pkgs., av. 8·15d. 1897, 13,145 pkgs., av. 8¼d.

	1898.		1897.		1st June to date 1898.		1st June to date 1897.	
	Pkgs.	Price.	Pkgs.	Price.	Pkgs.	Price.	Pkgs.	Price.
Assam ..	1,070	6·7	4,632	10¼	5,591	7·3	10,707	9·60
Cachar & Sylhet ...	242	5·89	4,158	6½	554	5·92	6,425	6·31
Chittagong	—	—	—	—	—	—	—	—
Chota Nagpore ...	—	—	211	3¾	—	—	211	3·75
Darjeeling ...	786	9·06	1,553	9	6,695	8·48	7,712	9·36
Dooars ...	423	6·86	1,599	7½	2,561	7·20	3,727	7·94
Kangra, &c. ...	88	6·50	260	6¾	524	6 60	436	6·60
Neilgherry ...	—	—	79	7½	655	6·67	757	6·74
Nerai ...	—	—	—	—	391	6	106	8·75
Travancore ...	369	5·50	662	5½	6,387	6·13	6,429	6·27

New Season's Tea sold on Garden Account 1st June to date 1898, 2,395 pkgs., av. 7·51d. 1897, 38,501 pkgs., av. 8·03d.

Comparative prices of Indian Tea in London.

		1898.	1897.	1896.	1895.
DUST.	(Fair ordinary, dark liquor) ...	3½d	3½d	4½d	4¼d
FANNINGS.	(Red to brown, strong rough liquor) ...	3¾d	4d	5d	4¾d
BROKEN TEA.	(Brownish to blackish, strong liquor) ...	6d	6¼d	7¼d	6¼d
PEK. SOUG.	(Blackish greyish, useful liquor).	6¼d	6¾d	8d.	7½d
PEKOE.	(Greyish to blackish, some tip, useful liquor) ...	7¼d	8½d	9d	8¼d
PEK. SOUG.	(Blackish greyish, inferior liquor).	5¼d	5d	5¾d	5½d
PEKOE.	(Blackish greyish, some tip, inferior liquor) ...	5½d	5¾d	6½d	6½d

Ceylon. The Teas met with a fair demand at prices current last week. Shipments from the 1st to the 15th inst. amount to 6,200,000 lbs., and it is estimated that 10½ millions will be shipped to this country during the month.

Average for the week 7·29d. against 7d. for the same period last year.

Ceylon Tea sold on Garden Account 1st Jan. to date 1898, 636,049 pkgs., av. 7·61d. 1897, 627,734 pkgs., av. 7·65d.

Comparative prices of Ceylon Tea in London:—

		1898.	1897.	1896.	1895.
PEKOE SOUG.	(Ordinary leaf; fair liquor) ...	6d	6d	6d	6¾d
PEKOE	(Ordinary leaf, little twist; fair liquor) ...	6¾d	7d	7d	8¼d
PEKOE SOUG.	(Rather bold leaf; indifferent liquor) ...	5¼d	4¾d	5¼d	6d
PEKOE	(Somewhat bold leaf; indifferent liquor) ...	5¾d	5¼d	5¾d	6¾d

Java. These included a useful selection and commanded satisfactory prices, one small line realising over 2/- per lb.

PUBLIC SALES OF SOUTH INDIAN TEA.

(AVERAGE FOR ALL INDIA 7·25*d.*) *July 15th.*

GARDEN.	Total.	Average.	Broken Org. Pek. or Flowery Pekoe.		Pekoe and Unassorted.		Broken Pekoe.		Pekoe Souchong.		Broken and Souchong.		Fannings, Dust, and Various.	
	Quantity	Price.	Quantity	Price.	Quantity	Price.	Quantity	Price.	Quantity	Price.	Quantity	Price.	Quantity	Price.
Neilgherry ...	**355 p**	**6·29**												
Kodanaad ...	108 p	6¾	...	...	48	6¼†6¾	30½c	7½	...	...	...	...	30½c	6½
New Hope ...	193 p	6	71½c	7½	47	6	...	...	68	5¼	...	...	7	5¼
Seaforth ...	54½c	6½	20½c	7¼	23½c	5¼	...	...	11½c	5½	...	..	...	...
Travancore ...	**1542 p**	**5·84**												
Ashley ..	61	5½	...	...	38	5¼	21	†6	...	...	...	...	2	2½
C A ...	38	5	...	...	12	5	16	5¼	...	...	10	4¾	...	...
Balamore ...	99½c	5½	...	...	66½c	5¼	28½c	†6¼	...	...	4½c	4¾	1½c	2¼
Bonaccord ...	230 p	5¾	...	...	113	5½	61	6½	26	5¼	...	...	30 p	3¼ 6
Braemore ...	146 p	5¼	...	...	48	5½	74½c	6½	...	...	12	5¼	12½c	3¼5¼
CMR ...	70 p	5½	...	...	45	5¼	23 p	6	...	...	...	...	2½c	2
Corrimony ...	70½c	7¼	...	...	43½c	6	25½c	9½	...	...	...	...	2½c	3¼
Goatfell ...	18	5¾	...	...	...	...	18	5¾	...	...	...	...	...	...
Kinmylies ...	63½c	5½	...	...	57½c	5½	...	...	4½c	5¼	1½c	4¾	1½c	2
Mahendragherry ...	64½c	5¼	...	...	57½c	5½	...	...	4½c	5¼	1½c	4¾	2½c	2
ME ..	3	4¾	..	...	...	...	...	...	...	...	3	4¾	...	...
Merchiston ...	63 p	5½	26½c	6	24	5¼	7½c	6½	3	5¼	...	..	3½c	3¼
P ...	7	4½	...	...	...	...	...	...	...	...	7	4½	...	...
Perrindotty ...	97 p	5¾	25½c	7¼	35	†5½	15½c	6	22	†5	...	...	...	...
Poonmudi ...	229 p	5¾	...	...	117	5½5¾	54	6½	27	5¼	...	...	31½c	3¼5½
Seafield ...	99½c	6¼	...	...	69½c	5¾	28½c	7¾	...	...	1½c	4¾	1½c	2¾
5th Trav Est Ven...	95	6¼	28	7½	39	5¾	...	...	28	5½	...	...	...	...
8th Indian T C K K.	90	6¾	61	6½7¾	23	5¾	...	...	...	...	...	...	6	6½

Bank Rate 2½ per cent. Exchange on London three months sight:—Calcutta 1/4. Colombo 1/4.

(AVERAGE FOR ALL INDIA 8·15d.) *July 22nd.*

South Wynad														
Kanam Chera Est...	88	6½	...	...	17½c	7½	26½c	8	11	6½	23	5¾6¼	11½c	4¼
Travancore ...	**369 p**	**5·50**												
Belford ...	126 p	5½	...	...	80½c	5¼	39½c	6	...	...	2½c	4¾	5½c	2¾
Home ...	128 p	5½	...	...	82½c	5¼	40½c	6	...	...	2½c	4¾	4½c	3
Invercauld ...	115	5½	...	...	62	5½	32	6 6¼	16	5 5½	...	...	5	3

Bank Rate 2½ per cent. Exchange on London three months sight:—Calcutta 1/4 1/32. Colombo 1/4 1/32.

THE MADRAS EQUITABLE ASSURANCE SOCIET

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PLANTING OPINION.

A WEEKLY JOURNAL

WRITTEN BY PLANTERS FOR PLANTERS.

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SUBSCRIPTION.—Advance Rates: Yearly, Fifteen Rupees; Half-yearly, ght Rupees; Quarterly, Five Rupees, and Monthly, Two Rupees, including stage. Single Copies, Eight Annas.

ADVERTISEMENTS.—From the 1st October, 1897, the charge for e advertisements will be: 4 as. per line for the first, 3 as. for the second, d 2 as. for the third and succeeding insertions. Five-line advertisements m Subscribers will be inserted for three issues for one rupee; non-Subribers will be charged two rupees.

DOMESTIC OCCURRENCE.—The fee for inserting a domestic currence will be *One Rupee* for each insertion, payable in advance.

N.B.—Remittances should be sent to the Manager, "Planting Opinion," /12, Second Line Beach, Madras.

IMPORTANT NOTICE.

The Business Offices of this paper having now been moved to Madras, all remittances should be made payble to the Manager of *Planting Opinion*, 11 and 12, econd Line Beach, Madras, who will also attend to all dvertisements, &c.

Letters to the Editor should be addressed to Coonoor, usual.

SEASON REPORTS.

TO OUR SEASON REPORTERS.

Please post your next reports to reach Madras on Friday, the 26th August, 1898.

Season Reports should be sent to the Printers, Messrs. Addison & Co., direct, and not to *Planting Opinion* Office.

Coorg.

Polli Betta, 17*th August.*—*Weather.*—About 40 cents on 6th; 10 to 15 on 7th; no rain till 13th, when 30 cents fell. 5 cents next day. 15th no rain; 16th 70 cents. Total to date about 33 inches odd. About 15 inches below average to date. *Plant-diseases.*—Removing and burning borer about finished. Leaf-disease only showing up in patches with clammy soil in poorish coffee. *Works.*—Supplying about all finished. Weeding, handling, and digging going on. *Labour.*—Sufficient. *Health.*—Good.

Nellampathy (British).

17*th August.*—*Weather.*—Very fine; the rainfall during August has been light, but very suitable for planting. Just at present there is a break, and we have had no rain for the last three days, but with such a light monsoon as we are having, a break is not so welcome as it usually is. August rain 7·82, total for year 77·85. *Crops*—Are showing up well, and very little being lost through dropping off, as so often happens in the monsoon. *Plant-diseases.*—Comparatively little about: only on some places is "leaf" at all bad, and on these it is *very* bad indeed, but on the majority there's very little showing. *General Health.*—Fair, improved somewhat this month.

Nilgiris.

Kil Kotagiri, 15*th August.*—*Rain.*—We have at last had a small shower. I am afraid it must have been very local. On one estate it was 35 cents, another 60 cents, and two miles away 5 cents. We hope for more. The general work is watering the trees, and every day oil tins come up the ghât from Mettapollium. *Crops.*—A few berries ripening here and there; picking will be early. Heavy crops are the rule this side. *Labour.*—Ample. *Grain.*—Still high.

THE LABOUR QUESTION.

AT the U.P.A.S.I. meeting the Chairman announced on Wednesday evening (10th instant) that he had received intimation (1) that the Government of India had acknowledged that South Indian planters had made out a case before the Southern India Planters' Enquiry Committee, and (2) that orders might be issued any day. Later in the proceedings, he thanked the Editor of the *Madras Mail* for the information given by him on this subject, thus showing that what he had referred to was what appeared in the *Mail* of 10th instant as a telegram from Simla in the following terms: "The recommendations of the Secretariat here on the subject of the Southern India Planters' Enquiry Committee are now before the Viceroy's Council, and orders may issue any day. I understand that the authorities are agreed that the case for action of some kind, on behalf of the South Indian planting community, has been made out. It is possible, therefore, that the recommendations of the Madras Government for a Provincial Labour Law in the Local Council may be adopted." As far as it goes, this news is decidedly good. In the first place, it is something to have an admission on the part of the Government of India that a case has been made out. The chief point for concern, however, is—how that case is to be met. The recommendations of the Madras Government appear likely to be taken as a basis, not the recommendations of the Committee of Enquiry; and it is not clear that the two are identical. Then, too, a Madras Labour law alone would be of no use to the large planting communities of Coorg, Mysore, Travancore and the small one that finds a home in Cochin. No doubt, however, it is the intention of the Government of India to invite the Native States concerned to adopt the amended law, as was suggested by the Committee. That they would do this gladly, if the new law were such as planters desire, there is little doubt. Hence, it is of interest to consider once more the recommendations of the Committee, in the hope that they may give some idea of the course that is likely to be adopted. These recommendations are summarised in the Committee's report as follows:—(1) That Madras Act V. of 1866 should be amended so as to provide a suitable labour law for all the planting districts in Southern India. (2) That the question of declaring Act XIII. of 1859 to be inapplicable to contracts for labour governed by the amended Act should be reserved for consideration. (3) That the Native States of Mysore, Travancore and Cochin should be invited to adopt the amended law. (4) That the execution of the amended law should be made reciprocal between the Madras Presidency and Coorg on the one hand, and the Native States of Mysore, Travancore and Cochin on the other, by a convention or mutual agreement. (5) In default of a convention—(*a*) that British Magistrates should be empowered to give effect to orders of certain Magistrates in Native States in respect of fraudulent breaches of contract under the amended law, or if there is no amendment under Act XIII. of 1859, or preferably (*b*) that Magistrates in British India and in the Native States of Mysore, Travancore and Cochin should be empowered by their respective Governments to deal with persons found within their jurisdiction who commit fraudulent breach of contract (as above explained) across the border. (6) That in the event of either of the above suggestions 4 or 5 (*b*) being accepted, the Mysore State should no longer be exceptionally tr in respect of British processes in breach of contract ca

Comparing this with the news from Simla, Nos. 1, 2 a are of the greatest interest. It is clear that the M recommendation is not likely to be based upon Act XI 1859. We must, therefore, fall back upon Act V. of This was intended "to regulate the manner of engaging contracting with Native inhabitants within any of districts subject to the Government of Fort St. Georg labour to be performed in any part of India beyon territorial limits of the Presidency of Madras." In respect it is just what is wanted. Let us see how it e its purpose. The Committee of Enquiry summarise follows:—The definition of the word "contractor Section 1 includes planters and plantation maistries; S makes contracts for labour in any part of India be the territorial limits of the Madras Presidency unl unless entered into in conformity with the provisio the Act; power is given to the Madras Governme Sec. 3 to appoint protectors of labourers, whose duti indicated generally in Section 4, and, as regards em tion by sea, in Section 14; rules for licensing contra and recruiters of labourers, for the registration of labo for the payment of fees and, if considered necessa the protector of labourers, for the establishment of d are laid down in Sections 5, 6, 7, 8, 9, 10, 11, 13 an penalties for breaches of the rules are provided in Se 16, 17, 18 and 19; Section 20 lays down the procedure adopted in prosecutions under the Act, and by Secti the Act came into force on the 1st November, 1 As regards the scope of the Act, the Select Comm appointed to report on the Bill said:—"It has appear us desirable that the provisions of the Bill should be a cable, not only to cases in which labourers may be eng for employment in such places beyond the territorial l of this Presidency as are under the direct governme Her Majesty, but also to cases in which the engagem may be for labour to be performed in any Native Sta foreign dependency in India, such as Travancore, Co Mysore, Hyderabad and the French Settlement of P cherry. We have, therefore, substituted the word 'I for 'British India' throughout the Bill, and insert interpretation clause defining the former term as incl all Native States and foreign dependencies withi territories vested in Her Majesty by the Statute 21 a Vic., Chap. 106." Finally, the Committee expres opinion that it is clear that Madras Act V. of 1866 law which ought to regulate emigration from all distri the Madras Presidency to Coorg and to the Native S of Mysore, Travancore, and Cochin. The most curiou of the matter is that planters, with few exceptions, nothing of this Act until the above report appeared that the Act has long been a dead letter.

The grave defect of Act V. of 1866 is, in the wo the report, that it "cannot be utilised in regard t labour employed on plantations within the Madras P dency, and its rigid enforcement, as regards the l employed in Coorg and the Native States of M Travancore and Cochin could only result in disaster t planting interest in those tracts, unless it were also applicable to the labour employed in the Madras Presi itself and to the labour exported from the Madras Presi to Ceylon, the planting interest in which enters

petition with the tracts mentioned." Further, its provi-s would scarcely give any relief, inasmuch as the provision Section 12 only applies to the case in which a labourer nout good and sufficient cause refuses or neglects to ceed to the place at which the contract is to be performed, does not reach the labourer who, having proceeded to n place, subsequently breaks his contract or otherwise ls fraudulently with his employer. Finally, several of provisions, as they stand, are inapplicable to the mode ecruiting in force for the tracts in question. In spite nese flaws, it is this Act that we hope to see amended and n put in force. Side by side with it, however, there uld certainly be a Convention with respect to reciprocity veen the Administrations of the British and those of the ive territories concerned.

SCIENCE IN PLANTING.

HE U.P.A.S.I. has urged upon the Governments cerned that an Agricultural Chemist is required for the dras Presidency, and another for Mysore and Coorg, if for Coorg alone. As regards the Mysore appointment, nay be taken that the applicant whom the Mysore bar has in view is likely to prove thoroughly competent. testimonials he has submitted are of an altogether ptional character. As regards the Madras appointment nould it be decided to make one—a selection still ains to be made. Bearing this in mind, we would call readers' special attention to what was recently said by Rt. Hon. A. J. Balfour, M.P., in an address delivered at 's Hospital. He made reference to the way in which growth of scientific knowledge actually puts difficulties ne path of its further increase. As our attainments in nce extend, so do the artificial barriers separating one ience" from another become less and less substantial, the more difficult it is to acquire a competent know-e of any one without a knowledge of others which ments *pari passu* with the knowledge which may pass competent in the particular science which the student selected as his *magnum opus*. At the same time our wledge of any one science can, as a rule, only be extended abours which are highly specialised, usually confined ed to a branch of the one science which is small in com-son with the whole subject. Thus on the one hand we e a demand for specialisation before research can be quately undertaken, and on the other hand the fact that mount of knowledge which cannot be acquired without de range of study is necessary to make the student of nce fit to embark in research with any reasonable hope uccess. Mr. Balfour considers that the only remedy this is the endowment of research. Men who have ed, as far as may be, a comprehensive knowledge of nce by assiduous work during the earlier years of their er, and who show the possession of the necessary genius original investigation, must be enabled to devote them-es wholly to such work, saving only such time from r specialised endeavours as will suffice to permit them to abreast of the general increase in the knowledge of ters bearing specially upon their own particular labours, must be absolutely exempt from all necessity of actising" any scientific profession for a livelihood.

here is no doubt that the endowment of research is very desirable and should prove of great service. But we should like to point out that the establishment of such appointments as Agricultural Chemist and State Entomologist, Quinologist, Botanist, etc., is but one form of such endowment, and a form of the most practical kind. Scientific research into agricultural matters *in England* can never be relied upon as an unfailing guide in regard to matters agricultural *in India*. What is wanted is not merely scientific study but practical experiment, and this near the scene of the operations of Nature that have to be studied. If the Governments of Madras and Mysore appoint the experts that the U.P.A.S.I. says are needed, they will, in effect, endow scientific research, and arrange for the conduct of such research under exceptionally favourable circumstances. It is instructive to note that such Governments as those of Queensland and Cape Colony have State Entomologists, that Jamaica and Ceylon have seen the necessity for following suit, and that India has still no official specialist to study the characteristics and peculiarities of its myriads of *poochies*.

NOTES.

A Tea Expert. Our Northern friends are beginning to agitate for a Tea Expert, and want the Indian Tea Association to "import" him.

Tea Pruning. Elsewhere we publish *in extenso* the article on tea pruning referred to in our last issue. We are indebted to the *Tropical Agriculturist* for the paper.

"Serdang" and the Liberian Coffee enterprise. In another column we print an interesting letter on this subject, which will be of general interest to coffee planters. We have to thank the *Ceylon Observer* for the excerpt.

The "Planter's" Prize. In accordance with the suggestion of a correspondent, the *Planter* has altered the terms for the essay on "Which is the oldest Tea Garden in India?" Instead of competitors being restricted to one thousand words, the terms now are "for an article of 1,000 words or more."

The Lantana Bug. A valued correspondent from Kandy writes:—

The Lantana Bug is beginning to attack tea here. Willis, Director of Peradinya Gardens, is warning men about it (E. E. Green noted it five years ago), but says it does not attack tea. It's gone slightly, however, for the tea near Gampola. It is a mealy beast, something like mealy bug, and may prove an awful pest.

Indian Markets for Tea. We reproduce in another column an interesting article from *Capital* on this subject. The idea is a good one, and should be extended over the whole of the Railway system of India. Were a good commission offered to the sundry refreshment-room contractors, they would undoubtedly take an interest in pushing sales.

Natal Tea. We have often ridiculed competition from Natal, but that colony is seriously attacking the London Market, having opened an

office at 34, Great St. Helens, for the sale of Anti-Dyspeptic Natal Teas. These teas are supposed to be free of tannin and all other so-called harmful ingredients. How do they do it? We need not fear serious competition if all the poisons which make tea *tea* are absent.

United Effort. This is the subject of a leading article in *The Planter*, and the U.P.A.S.I. goes on giving practical illustrations of the benefits to be derived from united effort on the part of the planting community. Our contemporary remarks that "the first necessity is for *unity* and *organisation* of those interested." This is said chiefly with reference to the desirability of trying to open out new markets, but it applies just as much to other branches of work. "A long pull, a strong pull, and a pull all together, boys," is what is wanted.

American Tobacco. The July crop report of the United States Department of Agriculture says as regards tobacco :—There is a marked increase in the acreage of tobacco in nearly all the States of principal production, Kentucky reporting an increase of 8 per cent., Virginia 4 per cent., Tennessee 15 per cent., and Ohio 7 per cent. There is a reduction of 6 per cent. in North Carolina and of 12 per cent. in Florida. The average condition is much better than at the corresponding period last year.

To brew good tea. The following recipe was written by the Chinese Emperor Kien Long, who died in 1799 A.D., and certainly holds good to-day :—

Place over a gentle fire a well-seasoned and long-used vessel filled with the pure water of melted snow. Boil it long enough to turn a lobster red, and then pour it upon the leaves of the choicest tea in a teapot of the finest porcelain. When the thick cloud issuing from it becomes a fine mist floating upon its surface, pour it into the cup and drink it off. This precious liquor will drive away every care. The delicious state of quietude produced by such a beverage must be felt and cannot be described.

Novel Tea Advertisements. Several million wooden toothpicks bearing the words "Drink Ceylon and Indian Tea" printed on them ; and one "Electric Shirt Front," with a wearer attached. The wearer is in evening dress and has a silk hat and a "diamond" stud at his bosom. The stud is the point of the joke : when the light is turned on, the words "Drink Ceylon and Indian Tea" come out in gold letters across the shirt-front with, as Mr. Blechynden puts it, "quite a startling effect." And "it has been most telling in the J quarter" of New York!

COFFEE SHADE TREE.

Sun-dried Erythrina Lithosperma loppings, &c., contain per ton :—

61·50 lbs. Nitrogen.
57·38 „ Potash.
14·92 „ Lime.
13·68 „ Phosphoric Acid.

Seed cured under Messrs. Sutton and Sons' advice.

Orders should be booked early for the 1898-1899 crop of seed from the parent trees of above analysis at Rs.6 per pound containing about 2,000 seeds. *Germination guaranteed.*

Only thornless variety extant, and is not procurable anywhere save from the

MANAGER, ARIENKOW ESTATE,
Shencottah.

The Government Botanical Gardens and Parks, Nilgiris. The annual administration r for 1897-98 has no special in for planters. Acting under c issued last year, Mr. Proudlock Curator, has carefully excluded "all scientific mat and has merely reported on "the development an provement of the gardens entrusted to his charge." the Government is now annoyed because the Collecto passed the report on "without remark." As a matt fact, the Government Order referred to has cause report to be almost unworthy of remark.

The cocoanut in rhyme. Messrs. J. & M. L. Tregaski well-known antiquarian bookse of High Holborn, Calcutta, had lately a carved cocoan sale, described as follows :—

1950—Cocoanut Flask, carved, with stopper, 7 inches high, 1 On one side a lady with a bottle, parting with a soldier hol glass, beside a ship ; on the other, an elephant with rajah in h and other figures, royal crown and Ceylon. Also the verse :

The mother of me is a cocoanut tree,
Her liquor is excellent sound ;
Arrack and toddy proceed from her body ;
So drink and be merry all 'round.

Old Tea and Burning. It would be worth the wh those owning abandoned or abandoned tea to try this method of rejuvenating bushes. On an estate on the Nilgiris we visited not ago, an acre and a quarter were entirely burnt out tog with a heavy jungle growth. There is not now a s failure amongst the bushes, but should this method be careful pruning after the fire, manure, and a deep for are the means to obtain an entire success. By ca pruning, we mean that all scorched or burnt wood sh be cut to the ground, and the bush entirely reformed, it will be found that the new shoots almost entirely pr from the root.

Who is he? The *Planter's* "own" on the giris is a bit of a curiosity in his He states in *one* letter (1) that South Indian planter "all at once asked to support" two Agricultural Chem one that the Mysore Durbar is getting out for the planters of that province and another that "Mr. Stone coffee curer of Coimbatore, has engaged more particu to aid his firm in its chemical-manure branch of busi (2) that "Mr. Ackworth, from the Wynaad, has been b the Commission sitting in London ;" and (3) tha Hon. Mr. Hodgson's evidence was not accepted, thoug went home with the object of tendering it. Three p bad shots! There is no occasion for us to italicis blunders.

Vanilla. A correspondent, writing t *Ceylon Observer* on this su says that the actual growing of the plant and ferti of the flowers are quite simple, but warns planters tha curing is a ticklish operation, as the Ceylon climate fa mouldiness ; and vanilla tainted by mould fetches no prices, say 3*s.* or so per lb., whilst the properly cured a

tches 19/ to 22/ per lb. Much care is also required to bring
t the aroma, and to so conduct the "sweating" stage
to produce the "frosted" appearance which is taken
a great extent as the criterion of quality. The same writer
ys there has been a serious drop in prices during the past
ear, viz., from 32/ to the price mentioned above, and that
e cultivation can be easily overdone, as there is only a
ery limited market.

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rices of tea and exchange, &c.

A correspondent of our contemporary, the *Planter*, makes some very interesting remarks anent the
gh average obtained by the Chamong Tea Estate, viz., s.1-1-8 for 163 half chests. Instead of worrying about xchange and home charges, he suggests a greater effort in eeping up a high average in spite of climatic and other fluences. It is a curious fact that up till now very few oncerns are able to make a high quality tea uninterruptedly roughout the season, and what is wrong with our cultivaon and manufacture that we are unable to do so? Our ontemporary suggests that this would make a capital subject r a prize essay, as the subject must ultimately be faced, planters cannot continue to make a lot of undesirable a which sell at unremunerative prices.

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ublic Accountants.

Madras has had Accountants before now, but only lately has a
rm of duly-qualified Accountants been established in the lace. Mr. Edward Ronaldson went to England a few onths ago, and having passed the necessary examinations, as admitted an Associate of the Society of Accountants and uditors. He has now returned to Madras to co-operate ith his brother, Mr. Allan Ronaldson, who is also an Assoate of the above Society. Messrs. Ronaldson and Ronaldon are thus "Incorporated Accountants," and the long xperience of the senior member in audit work will be well pported by his partner's mercantile experience. The rm has a strong connection already among planters, so hat estate accounts are no new thing to it; and any lanter who wishes his accounts put, or kept, straight may afely entrust them to this firm's care.

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ea Crops.

We think it would be of general interest to those interested in tea
planters would let us know the date, when half the crop considered to be harvested, both on the plateau of the Nilgiris, the high range estates in Travancore, and in he Wynaad and other low-lying estates. In Assam, we elieve, the 28th August is the date generally adopted for nally estimating the crop, half then being considered ropped, and a knowledge of an approximate date down outh would be useful, not only for reference, but of great tility to those who are close pressed and draw advances gainst probable outturn. Coffee can generally be estiated by sight, after once the berries have begun to form, ut the same does not apply to tea, and the information we sk for might save many from unpleasant correspondence ith agents at the close of the season.

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orrespondence with "Planting Opinion."

A correspondent to our contemporary, the *Planter*, writes as follows: "Money makes the mare to go, and if sufficient inducements were offered, I think many lights, at present hidden under a bushel, would come forth and shine brilliantly. The industry does not know of the talent it has in its ranks. Let it put it to the test in the manner suggested, and I feel sure great will be the surprise. Oil the lamps, and then they will burn brightly." We have anticipated the above some weeks ago, by offering to subscribers a *quid pro quo*, for the efforts they may make, in placing before their brothers the results of their experience in the very many intricacies connected with tea, coffee, sport, or in fact any matter connected with a planter's life. If our correspondents are not adepts at conveying their thoughts in such a way as may be acceptable to the reading public, we are also willing to accept notes, which we will work up; but this, by experience, is the exception, and if only the talent amongst us would give us the support we expect, it would make our paper far more interesting, and would be a "side product" to many of our friends, who in these times of high exchange and low prices occasionally find that "times are hard." Altering the quotation from the extract we commenced with, we repeat, "*Oil the lamp and we* WILL *burn brightly.*"

Tea & Coffee Markets.

At the last London sales before the mail left, there was a somewhat larger and more varied assortment of Indian teas, writes the *Produce Market Review*, "and, on the whole, a little improvement in quality can be reported, especially in Assam and Dooars growths, a few parcels from these districts having attracted attention. The bulk of the parcels were, however, neglected, being thin liquoring kinds without character or strength, and prices for these were irregular. Darjeelings were more liberally offered, and as the Teas were more attractive than the earlier shipments, they fetched firm prices. A large proportion of the sale consisted of Calcutta-bought Teas, both old and new season's; these were difficult of sale, and previous rates were barely realised. Competition was brisk for Travancores, both Leaf and Broken descriptions showing good value, as compared with Assams at similar prices. At the sale held yesterday in Calcutta, we learn that about 18,000 packages were offered. Calcutta exports for the month of June were 8,790,000lb. against 6,760,000lb. for the same month last year, making 11,500,000lb. to date for this season compared with 9,940,000lb. in 1897. The quantity offered here at public sale was 12,844 packages, of which 8,000 were new season's."

Coffee.—With increased daily receipts in Rio and Santos there has been less desire to operate, and quotations in the terminal market have shown some weakness. The increase in the receipts is due to the arrival of the new crop, and though no fresh news has been received, it is generally accepted that the crop will turn out somewhat less than the last, but will still be a heavy one, and the Brazilians naturally show a decided desire to sell. At the auctions the demand keeps slow, though there has been some improvement from the Continent for the better grades. Rather more business has been done in East Indian at better prices than were obtainable a month ago, and the opinion gains ground that in the autumn this and other fine growths will be wanted. A few lots of Plantation Ceylon fetched extreme rates, while Costa Rica has sold at full prices for the finer qualities, and the lower kinds remained steady.

LONDON COFFEE RETURNS.

—	HOME CONSUMPTION.		EXPORT.		STOCK.	
	1898	1897	1898	1897	1898	1897
For the week ended July 9, 1898.	Tons. 263	Tons. 320	Tons. 461	Tons. 416	Tons. 19,494	Tons. 14,233
For the 27 weeks ended July 9, 1898.	8,130	7,858	14,209	11,214	—	—

GENERAL ARTICLES.

OXIDATION AND FERMENTATION.

ON this subject there is considerable correspondence going on in the planting papers. Our own idea is that everything should be done to procure a complete oxidation and prevent fermentation. Oxidation is a natural chemical process. Oxygen is Nature's policeman, and enters into every feature of Nature's economy. "Bamber" says the colour we so much desire before firing is due to the presence of oxygen, and if this gas is not present, he asserts that the necessary colour is absent; in fact, withered leaf, put under a receiver with the air exhausted, retains its original colour after twenty-four hours; also the infusion shows that little or any of the astringent properties of the leaf have been destroyed.

As all planters are aware that the London tea tasters have altered their methods, and prices now are almost invariably fixed only by nose and sight, it seems to us, though we do not wish to lay down the law on the subject, that what we have stated proves that oxidation, *not* fermentation, is the method to be adopted by those who study the means of obtaining high prices and thus improve the status of South Indian teas.

Everything possible ought to be done to eliminate "rubbishy" teas from the market, as at present the large quantity of low grades is proving seriously detrimental to the high standard expected by "Mincing Lane" from Indian and Ceylon districts.

THE LANTANA BUG.

FOR a very long time past "Lantana" has been a bugbear to planters when once it has asserted itself, notwithstanding the very few advocates it had in its favour, but now that the bug which hitherto has made the Lantana its special preserve has shown its intention of transferring its favours to tea and coffee, the obnoxious shrub known botanically, we believe, as *Lantana aculiata* should receive a very short shift, and be made the object of a special crusade. Elsewhere we publish remarks from a Ceylon correspondent showing that the pest has already extended its ravages to tea, so a very serious menace is facing Southern India planters wherever the shrub is existing.

The authorities of the U.P.A.S.I. have already extended a willing hand to import "lady-birds" to exterminate scale pests, and in these troublous times every effort should be made to cope with a new enemy before it makes a hold on one or every of our industries. In earlier days we wer prepared for, neither did we expect these jungle pes leave their aboriginal haunts and attack our cultiva but with the experience we have since gained, that cul tion attracts all jungle parasites and poochies, and more havoc amongst the richer fed and cultivated bu than those which it can feed on in the jungle. It beh all those who care for and attend to their own interes take the necessary steps to prevent the incursion of a enemy which has so insidiously asserted itself in our m and exterminate *Lantana aculiata*, the bane of every e where it has once taken a firm hold.

With the many and awful pests we have to deal many of which have not as yet reached South India necessity of combating a new enemy is evident. We been spared mosquito blight and other blights prevale Assam, Cachar, Darjeeling, and the Dooars, but they, o other hand, do not know of "flush worm," commonl called, but the Lantana shrub is so diffused throughou whole of India, that it threatens red ruin unless kno on the head in its initiatory stage, and prevented becoming the same bane that many of its *confrères* become, by insiduously asserting itself, and not b dealt with till it has assumed proportions which pre its extermination.

HOW TO VANQUISH THE MOSQUITO.

ACCORDING to an American paper, *The Public Health Journa* dreaded mosquito, which is such an intolerable nuisance i summer months, more particularly along river-banks and o seacoast, can be easily abated by the use of a very simple re It is stated that but two and-a-half hours are required for the lopment of the full-grown mosquito from a mere speck, its first s It can be instantly killed either in its infancy or at maturity by tact with minute quantities of permanganate of potash, the cheap p salt which is used so much for disinfecting purposes. It is said a solution of the salt containing only one part in fifteen-thousa water, distributed in the marshes where the mosquito breeds, render the development of their larvæ impossible. To quote journal itself: "A handful of permanganate will oxidise a ten swamp, kill its embryo insects, and keep it free from organic m for thirty days at a cost of twenty-five cents. With care, a state may be kept free of insect pests at a small cost. An effica method is to scatter a few crystals widely apart. A single pin permanganate has killed all the germs in a thousand-gallon ta *Chambers's Journal* for August, 1898.

A RECORD SALE IN "RED TEA LEAF" AND THE HISTORY THEREOF.

THE following from the *Ceylon Observer* is a cu instance of "doctors disagreeing," or Oriential and Lo brokers taking a different view of the value of tea, ra "stuff." It would have been interesting to see the b brokers' report:—

"You are a steady denouncer of the shipper of 'rubbishy and in that I agree with you. Yet I have humbly to confess t have been in the London market with rubbish, and come out way that has surprised me. My 'flutter' was forced upon me, had shipped good Broken Pekoe, and while it was in Colom presumedly between the store and the wharf—some of the c were tampered with, emptied of their contents, and a vile samp red leaf and dirt was substituted. I was not the only sufferer; marks were treated in the same way, and the thing was don neatly that it was only by very careful examination that it exter became evident that the chests had been opened. The lead i was cut, and left unsoldered. A sample of the 'muck' was forwa

me from London, and instructions asked for: Would they it, or what? I naturally grumbled a good deal, for I made sure t the loss would have been less had the chests been walked off h for good, but to be filled up with a kind of no quality tea, and which I would have to pay the usual shipping charges, etc., was e adding insult to injury. What to do with it? That *was* a question, l I expected to see my estate mark with a sale of Broken mixed at . or 2*d.* a lb. and to read again a burst of indignation from various rters on the iniquitous cut-throat policy of shipping rubbish and oiling the face' of Ceylon teas. So I replied to my London nds that I left the problem with them; they could sell it or ndon it if they liked, but they were to take no course that would d me in any extra expenses, and there I left it. Fancy my astonish-nt to get by the mail just in a memo. of sale for this unique thing teas—and 4¼*d.* landed! I am sorry I threw away the samples ich were sent me, for I am sure the all-seeing editorial eye if it l seen them would have admitted that here was (and at the price) nething it had never seen before. Four-pence-farthing for such ff is surely a thing only to be dreamt of!! Who could be the vers of this undrinkable stuff and how could it be utilized?"

P.S.—I find that my tea maker *has* kept back a sample of the roken mixed' which I told him to throw out. So I send it for pection."

Messrs. Somerville & Co. have been good enough to report on the mple sent us as follows:—"Brownish flaky mixed dusty; liquor ry common. London value 2*d.* Colombo equivalent at exchange 4¼*d.*=6 cents." This increases the mystery of the London sale 5¼*d.*? We trust this will not be taken as an encouragement to go for the shipment of "rubbishy tea" worth 1½*d.* to 2*d.* in the hope "landing" 4*d.* to 4½*d.*!—a trade which undoubtedly the full olition of the tea duty would be apt to foster. There is, however, chance of getting rid of this duty save by gradual steps—the st probably being a reduction from 4*d.* to 3*d.*; then another year om 3*d.* to 2*d.*; and then, after an interval, total abolition.

DISTRIBUTION AND SALE OF TEA.

ANENT our remarks last week on this subject, the follow-g from a Ceylon exchange may prove of interest:—

It is well to remember how Ceylon tea first came into notice in the ited Kingdom. The prejudice against it in Mincing Lane was ry great; it is always so at first with reference to any new depar-re in an established trade. Samples or shipments of any product ntified with certain regions, coming from a previously untried ntry, are viewed with suspicion, and brokers and buyers were far m favourable to Ceylon tea at the outset. The distributing uses and middlemen would have nothing to do with it. How then s a demand created? It is not too much to say that a thousand or re Ceylon planters did this effectually by sending sample chests half-chests to their relatives—parents, cousins, aunts—all over e Kingdom, and instructing them how to make and enjoy this new a, and then to insist on getting no other but Ceylon tea from their ocers. That speedily created a demand which had to be supplied, that for some years the shipments from Colombo were not equal to e requirements of Mincing Lane. To hasten the distribution, oreover, a considerable number of retired coffee planters or other lonists became agents for certain tea estates and supplied the local llage grocers, or families, taking a chest or half-chest at a time. ll this speedily created a revolution in the tea trade: "Chinas" ere everywhere decried in households that had become accustomed the superior flavoured "Ceylons," and Indian teas also greatly rofited by the change in public taste originally started by the action a thousand or more planters out in Ceylon.

Now the problem before us at the present time is whether some tion cannot be taken to meet and overcome the present crisis milar to that effected a dozen or fifteen years ago. The trouble is w that, while Ceylon and Indian teas command the United King-m and the people are willing to pay a fair price for a good tea, eir taste is being gradually spoilt by very inferior mixtures, while, the various grades sold, the enormous profit goes nearly all into e pockets of middlemen, and the producers see only a fraction hich, year by year, is growing less. How is this to be met and medied? The first thought and answer is,—by the formation of a werful Syndicate of planters and their friends to establish a Direct Supply Tea Association" and compete with the big tea stributing houses on their own ground. This, we are assured, has been thought of by Ceylon men settled in the Metropolis with the command of capital and experience in business; but after full consideration, they have shrunk back from an enterprise which they declare would be attended with immense difficulty and risk and might eventuate, through failure, in doing more harm than good to the producer. This is a first decision and we do not accept it as final, if the evil complained of continues as bad as at present. But, there is a simpler, preliminary mode of proceeding open to the Ceylon planter and his friends at this time which ought to be tried. It is well known that teas, advertised as the finest and retailed as high as 2*s.* and more per lb. by the big houses, are bought in the Lane at not more than 8*d.* per lb. We can imagine what the medium teas must be like if these are the finest sold in this way, and how the public taste is being gradually lowered. Now, it is suggested that the 1,600 planters now in Ceylon should once more send home good superior samples, half-chests or chests, to their relatives and friends with instructions that they are to demand and require of their grocers a better class of tea, a tea up to the sample produced which can be got for such and such a price. In many cases where there is opportunity, leisure, and inclination, this may, of course, lead to a little "direct trading," and every little helps. But, in any case, the simultaneous demand all over the United Kingdom for a better class of tea than that now sold at 1*s.* 6*d.* and 2*s.*, and the demonstration to grocers that a far superior tea *can* be laid down in his store, with an ample profit to himself, for that money, could not fail to work a change; to cause a fluttering at headquarters among distributiug houses and a re-arrangement and improvement in their grades of tea sold—all of which must tend, to some extent, to benefit the producer by giving a better price for his tea. It depends on the planters themselves then for the crusade to begin.

THE INDIAN TEA ASSOCIATION (LONDON).

THE following are extracts from the Annual Report laid before the Meeting on 26th July, 1898:—

NEW MARKETS.

Mr. Blechynden's Work in Amsrica.—This important work continued to receive the attention of the Committee during the whole of the year. The two Commissioners—Mr. Blechynden for India and Mr. Mackenzie for Ceylon—have continued to work together satisfactorily with no inconsiderable measure of success in making British-grown teas known to the American consumers. The various modes of advertisement have been detailed in previous reports, and these were combined with subsidies to persons and firms who interested themselves strongly in the movement. It may be safely said that facilities for obtaining British-grown teas are now offered in nearly every important district in New York, Brooklyn, Boston, etc. The number of firms dealing with Indian tea has largely increased, and of these firms nine out of every ten store our teas and offer them for sale to consumers. Efforts are being made in many quarters to take advantage of the trade in green tea, which is the predominant tea in the United States, by mixing with it a proportion of Indian and Ceylon growths, and in this direction an increasing consumption is looked for.

In response to the appeal made in Calcutta, subscriptions amounting to Rs.1,02,039 were received in 1897, as compared with Rs.1,03,674 in 1896 and Rs.90,575 in 1895, and in addition the sum of £200 was subscribed in London.

The planters of Southern India again contributed liberally.

The Committee issued on 15th of February an interim report on the operations in America. As will be seen from the interim report, the Committee, in view of the increased crops expected yearly both from India and Ceylon, recommended a fresh levy to enable them to continue their special work in America; This recommendation has been supported by the General Committee of the Indian Tea Association, Calcutta, and it is hoped that subscriptions will not fall short of those of last year.

The Tea Tax in the United States.—The imposition of a duty of 10 cents per pound as a war tax is unfortunately likely to curtail considerably the consumption of tea in the States, as it will add appreciably to its cost and tend to make coffee the more popular beverage. It is hoped, however, that the tax will be only a temporary one.

Our advertisements now point out that, owing to the strength and purity of our teas, buyers will not feel the tax so much as those who drink the weaker Japan and China tea.

Other New Markets.—In view of the increased production expected from the large area of new extensions to come into bearing, the Committee recognise the importance of giving attention to other markets besides that of America, especially to that of Russia, and will, at the first opportunity, appropriate a portion of the funds at their disposal towards that object.

Regulation of Sales.—Having been in communication with the Tea Brokers' Association on the subject of the excessive quantities of tea offered for sale on Mondays, and after consulting members on the subject at the end of March last, the following regulations were made:—

"1.—That Indian tea sales be held on Mondays and Thursdays during eight months of the year, and on Mondays only from the first Monday in April until the last Monday in July.

"2.—That the quantity limit for Mondays be from 25,000 to 30,000 packages, regulated so as not to require the sale to be continued later than 4 P.M.

"3.—Any surplus unsold from Monday's sale shall be offered on Wednesday. No catalogues to be printed for Wednesday.

"4.—Small breaks, appertaining to the tea offered, to be sold at the close of each day's sale."

TEA CROP.

The first estimate of the crop for last year was 156½ millions. The actual crop gathered was only 148 millions, climatic conditions having been unfavourable for yield and quality. The actual quantity shipped to the United Kingdom was 134 millions.

For the current season the total crop is estimated at 158¾ millions, of which 140½ millions will, it is estimated, be available for the United Kingdom. Unseasonable weather, however, in Cachar and Sylhet, experienced since the above estimates were framed, will considerably reduce the crop.

Travancore is not included in the above estimate, and about three million lbs. may be expected from that district, making a gross total of 161¾ million lbs.

TEA STATISTICS.

Countries outside the United Kingdom took nearly 9,000,000lbs. more Indian and Ceylon Tea in 1897 than in 1896. Progress in these external markets has been not only steady but rapid, viz.:—

Indian, 1893, 14,027,129; 1894, 14,149,904; 1895, 16,815,323; 1896, 19,206,172; 1897, 22,198,810.

Ceylon, 1893, 13,138,544; 1894, 14,563,082; 1895, 19,923,803; 1896, 23,465,733; 1897, 28,949,314.

Total lb., 1893, 27,165,673; 1894, 28,712,986; 1895, 36,739,126; 1896, 42,671,905; 1897, 51,148,124.

Stocks of Indian tea in London on 31st of May were:—

1896	1897	1898
26,750,610lb.	32,235,212lb.	38,213,368lb.

It is satisfactory to note that notwithstanding the increased production of Indian and Ceylon tea, the total stock of all tea in the United Kingdom was less on 31st of May than at the same time last year.

1896	1897	1898
69,601,000lb.	70,213,000lb.	66,915,000lb.

THE CURRENCY COMMITTEE.

STATEMENT OF THE INDIAN TEA ASSOCIATION.

THE following printed letter was sent to the Rt. Hon. Sir Henry Fowler, M.P., President of the Indian Currency Committee, on 24th June, 1898, by Mr. Ernest Tye, Secretary of the Indian Tea Association:—

SIR,—This Association, representing the producers of tea in India, is deeply interested to the solution of the questions now under the consideration of the Committee over which you preside, and I am directed to submit the following statement with reference to the action taken by the Government of India in closing the mints to the free coinage of silver and raising the exchange value of the rupee to about 1*s.* 4*d.*, and the effect of the same on the industry:—

(1) The Indian tea industry first began to be of importance about 35 years ago, when the crop of tea amounted to about 3,000,000lb. The crop of the past season was 151,000,000lb.

(2) This great industry, which was built up by the ent of our countrymen, and now represents a capital of over £20,0 has been the means of reclaiming large tracts of waste land Valleys of the Brahmapootra and Surma and other districts in and besides giving employment to several hundred European as Volunteers, form a valuable addition to the defensive resou the country, it provides for over 1,000,000 natives of India, whom come from congested districts and have greatly benefi the extension of tea cultivation.

(3) The capital invested in tea property in India is largel by persons in the United Kingdom, who were encouraged up an industry initiated by the Government of India, and since been attracted by the comparative safety of an investme staple article of consumption, which has hitherto given the returns on their money.

(4) The consumption of British-grown tea (Indian and C in this country last year amounted to 215,000,000lb., or near per head of the population, and the United Kingdom deriv large revenue of more than £3,500,000 from the heavy import representing over 40 per cent. of its value levied on the articl

(5) The action taken by the Government of India in its end to give an artificial value to the rupee as compared with the p value of its weight in silver places the growers of tea (as w other producers) in India at a disadvantage in their comp with their rivals in other silver-using countries to the ext exchange be maintained at 1*s.* 4*d.*, of the equivalent of an duty of over 30 per cent.

(6) Tea cultivation involves a large expenditure of c extending over several years, before the plant arrives at ma and if it ceased to be remunerative, the land, being generally un for any other crop, would relapse into jungle, and the money in it would be lost.

(7) The effect of the present currency policy on th industry of India is already seen in diminished profits, as sho the published accounts of various tea companies, and every added artificially to the value of the rupee will reduce the pro the industry this year by £250,000. The distrust which has created is also putting a stop to the further extension of tea vation in India, and will, it is feared, divert capital from In China, for the purpose of developing the tea industry of the country, under European supervision, and with modern metho cultivation and manufacture. The future of Indian and Ceylon will depend largely on their increased consumption in cou outside the United Kingdom, and the burden placed on them b artificial value given to the rupee will put them at a seriou advantage in competition with China tea. Without entering a lengthened criticism of the currency policy of the Goverr of India, I am to point out that the closure of the mints to th coinage of silver has not established that fixity of exchange was the avowed main reason for the adoption of the measur provided for the Government the supply of gold required to r the introduction of an effective gold standard practicable although the exchange value of the rupee has been raised higher level, thereby reducing the loss by exchange on the S tary of State's drafts, this saving has been obtained at the c producers in India, while the stringency produced in the r market imposes a heavy burden on trade, and threatens, i longed, to have disastrous effects on the industries of the cou The further proposals of the Government of India, as set fo their despatch, dated 3rd March, 1898, are framed so as to inc the stringency referred to, with the object of compellin exchange of gold for rupees at the rate of 1*s.* 4*d.* per rupee, or hi This is an attempt on the part of the Government to obtain below its value in silver at the expense of producers in India, the certainity of heavy, and possibly ruinous, loss to industries which India has to depend for the maintenance of the favou balance of trade required to enable it to meet its foreign indebt

I am desired to say that all, or any, of the following gentl who are members of the Association and have had exte experience in connection with the Indian Tea Trade, will be pre to attend as witnesses before the Committee whenever evidence can be taken:—Mr. D. Cruickshank, Mr. R. B. M Mr. J. N. Stuart, and Mr. W. H. Verner.

MILLIE & REDMOND, late P. THOMPSON & CO., *Ootacamund, Engineers and Contractors.*

PEIRCE, LESLIE & CO.

CALICUT, COCHIN, TELLICHERRY, MANGALORE.

DON OFFICE:— 14, BILLITER STREET, E. C.

CALICUT PRICE LIST
OF
ESTATE REQUISITES.

B.—We are prepared to indent home for any and all kinds of estate requirements not kept in stock or enumerated in this list.

ATE TOOLS—	Rs.	A.	P.
Round Eye Felling Axes (steel), 4 lbs. weight per doz. ...	20	4	0
Do. do. do. 2½ „ „ „ ...			
Pick Axes, 6½ lbs. (well steeled) ... ... „ ...	16	8	0
Bill Hooks, (Barcutties) 12″ blade, bright steel „ ...	18	0	0
Do. Kentish, with back, steel, 2¼ lbs. wt. „ ...			
Bushel Measures (Galvanized), Imperial Stnd. ...each ...	15	0	0
Buckets (Galvanized), various sizes ... from per doz. ...	16	8	0
Watering Cans, (Galvanized) "Nonsuch," 2 gals. each...	4	0	0
Do. do. do. 2½ „ ...	4	8	0
Steel Digging Forks. *Steel strapped all along handle.*			
4 & 3 pronged per doz. Rs. 39-0-0 &	33	0	0
Grass Knives, socket handle, steel ... per doz. ...	12	12	0
Hammers, 6, 7, & 8 lbs. ... ... per lb. ...	0	6	0
Handles, Pickaxe, 3 ft. long (English Ash) ... each ...	0	12	0
Do. 30″ long 3¾″ circ. (do) ... „ ...	0	6	0
Do. 16″ „ 3″ „ (do) ... „ ...	0	4	0
Do. Digging Fork ... ... „ ...	0	14	0
Lining Ropes, abt. 250 feet ... ... „ ...	8	12	0
Mamooties, Steel 10″x 8″ or 9″x 7″ abt. 4 lbs. wt. per doz. ...	12	12	0
Do. Iron 10½ x 8½ or 9½ x 8 abt. 4 lbs. wt. „ ...	7	8	0
Quintanies, Steel 15″ x 6,″ 5½ lbs. weight ... „ ...	18	0	0
Do. 9½″ x 5,″ 3¼ „ „ ... „ ...			
Manure Pans, (Galvd.) 7″ deep x 18″ top x 10″ bottom „ ...	23	4	0
Pitting Bars (Alavangoes),			
well-steeled points, 3″ spade end, 45″ long, 9 lbs. wt.„ ...	16	8	0
Pruning Knives, English make, best steel, 4″ blade „ ...	9	0	0
Do. Saws, do. do. 14″ „ ...	18	0	0
Seamless Bags (for coffee transport to coast) 42″ x 20″ „ ...	9	12	0
Shovels, round nose, T handle ... ... „ ...	12	12	0
Tea Transplanting Spades, steel, sharp edge ... each ...			
Tea Sieves, brass No. 6, 8, 9, 10, 12 mesh „ ...	6	0	0
Do. do. bottoms do. „ ...	3	8	0

REQUISITES—FOR PACKING.

CHESTS—MADE TO ORDER. *Deld. at Mettapollium, Palghat, Calicut.*

Full Chests 24 x 19 x 19 (outside) ½ in. planks each ...	1	1	0
Half do 16 x 16 x 16 („) do „ ...	0	13	3
Quarter do 14 x 12 x 10 („) ⅜ do „ ...	0	9	3

Any other dimensions at proportionate prices.

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127 sheets 37″ x 22″ ... ... per case of 2 cwt.	32	0	0
or 218 „ 25″ x 19″ ... ... „ ...	32	0	0
„ { 40 „ 84″ x 22″ for sides } „ ...	30	0	0
{ 80 „ 21″ x 16″ „ tops and bottoms }			
„ { 72 „ 65″ x 19″ „ sides } „ ...	30	0	0
{ 144 „ 14″ x 14″ „ tops and bottoms }			
Solder (Sticks) per case of 1 cwt. Rs. 50, or per lb. ...	0	8	0
Soldering Fluid ... ... per bottle ...	2	0	0
Hoop Steel ½″ (abt. 3,000 feet to the cwt.)... per cwt. ...	15	0	0

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For Arabica. For Liberian.
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Copper Punched Cylinder cover 4′ x 2′ ... each ...	25	0	0
Do. Disc cover ... ... „ ...	9	0	0
Do. do. for Liberian ... „ ...	12	8	0

COIR MATTING—In rolls of 60 feet long x 3 feet wide.

Estate, Double, (coffee drying, etc.) Nos. 1 and 2, Rs. 2-8 &	2	4	0
Ordinary Bungalow Twill	7	0	0
Fine Machine-made Yarn	12	8	0
Superior Yarn	15	0	0

Coloured stripes to order. Samples sent on application.

IRON—GALVANIZED.

Continuous Iron. For roofing, etc.			
In rolls of 100 ft. x 2 ft. 28 G. (per ft., 7 as.) per roll ...			
Corrugated Iron sheets 24 G. 2 ft. wide (English)			
Lengths 5, 6, 7, 8, 9, 10 ft. } per cwt....	10	0	0
Approx. weight 14, 16, 19, 22, 24, 27 lbs. }			
Iron Ridging, 6 ft. x 6 inch lap. ... per length ...	1	8	0
Bolts and Nuts, ¼″ x ¾″ ... ... per gross ...	1	14	0
Rivets (*abt. 64 to the lb.*) ... ... per lb. ...	0	4	6
Washers, Iron (*abt. 70 to the lb.*) ... ... „ ...	0	4	6
Do. Lead (*abt. 50 to the lb.*) ... ... „ ...	0	6	0
Screws 2½ in. (*abt. 28 to the lb.*) ... ... „ ...	0	7	0
Lead headed nails 2½ in. (*abt. 20 to the lb.*) „ ...	0	6	0

NAILS—

Cut Rose Nails 1 in. (*abt. 500 to the lb.*) ... per lb. ...	0	3	0
Do. 2½ in. („ 90 „) ... „ ...	0	2	3

Wire Nails, French.

℔ 1 cwt. keg	1″	1½″	2″	2½″	3″	4″
Rs.	13/12	11/8	11/	10/8	10/	9/8
℔ pound annas	2¾	2½	2¼	2¼	2	1¾
Nails ℔ lb. (*abt.*)	400	200	160	100	80	35

Triangular Barbed Wire Nails.

℔ 1 cwt. keg	1″	1½″	2″	2½″	3″	4″
Rs.	14/	12/	11/	10/8	10/	9/8
℔ pound annas	2¾	2½	2¼	2¼	2	1¾
Nails ℔ lb. (*abt.*)	500	290	160	110	75	40

ASPHALTE ... ... per ton ...	69	0	0
PORTLAND CEMENT—John Bazely White and Bros.			
"Whites" Best ℔ barrel of abt. 375 lbs. net ...	11	12	0
Sole Agents for S. Canara, Coorg, Malabar, Coimbatore, Travancore.			
COAL TAR, Best ℔ barrel of abt. 4 cwts. gross ...	20	0	0
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22×18, 24×20, 28×24, 36×24 and 36×30.

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Quotations will be obtained and orders booked for any Manures not kept in stock. F.r.m.

5

THE following verses are taken from the *Times of Ceylon*:—

A SONG OF QUEEN TEA.

("And still they come."—*Ancient Legend.*)

A song of Queen Tea, I'll sing—
King Coffee, alas! is dead—
A song of the jungles ablaze in the spring
With yellow and green and red:
The ring of the native axe,
The crash of the falling tree,
The blaze of the fire that crackles and cracks,
The shriek of the Sinhalee:
The crackle, the blaze and the roar,
The smoke-columns rolling high,
That blot out the heavens behind and before
And redden the sun in the sky;
The black of the burnt hill-side,
The ridge of the hill like a comb,
The chaos of timber awry and astride—
Here is the planter's home!

Now see how the roads and the drains
Show yellow against the black!
'Tis thus that he bridles the 'monsoon rain's'
South-West and North-East attack.
Now the land is cut up into squares
With lining and holing and pegs;
For this is the manner the planter prepares
To plant—sure as 'eggs is eggs.'
The nurseries waving green,
The rains come down with a plump—
The weeds spring up; where on earth have they been
All the while?—and in goes the stump.
Then down comes the white-weed and fern,
The illuk and prickly spine,
But nevertheless they return and return
Nine hundred and ninety times nine?

Then, sudden, a bungalow springs—
The outcome of innocent plan—
In place of that Palace of Pioneer-kings
Of wattle a daub and cadjans,
A bungalow glittering white,
And roofed with the red of new tiles,
From here sees the planter to left and to right
Broad fields of deep green—and he smiles.
He smiles for the trials that were,
For the prospect of fortune to be,
For the land he has opened and made to bear—
At the black girls plucking the tea.
He smiles for the work he has wrought,
For the knows he has little to fear:—
Oh, the slow-coach folks 'at home' know naught
Of the pride of the pioneer!

You slow-coach folks 'at home,'
You folks of the 'auld countree,'
Now shut up your houses and cross the foam—
Who think you are wiser than we.
Do you know how your tea is grown?
Do you know how it's withered and rolled?
'No matter,' say you, 'though we've not been shown;
We *well* know how it has *sold*!'—
Go, buy in the London mart,
Then fill up your mouths with our tea,
You know that the prices are down—my heart!
Do you know that better than we?—
Then give us a cheer, say I,
And lend us a helping hand;
For there's very much more than meets the eye
In this beautiful spice-blown land.

What happens when Tea goes 'down'?
First, good men go to the wall;
Where once was a smile, there's now a frown—
There's not enough work for all.
The candle's then burnt at both ends,
And—*a man knows chum from chum.*
Do you want to know how to help us, friends?
Just *stop those 'creepers' that come!*
Those fine young dudes you send
Get taken and taught *for their cash.*
No wonder your favourite 'Singhalese Blend'
Turns into the inferior trash!

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You like your tea? That's well!
Then look to this spice-blown land;
And ere the profession goes 'slick to hell,'
Just—show us a helping hand.

So much for my song of Queen Tea;
I've sung her for all I'm worth.
It mayn't be much, but I've entered a plea
For her life, not her death from her birth.
There's many a man just now
Who wants every cent he's got;
Though a planter's hand ought to be at the plough
And not in his pockets, I wot!—
Come out, then, and have a look round,
For it's truth I've sung, not lies;
And you'll see for yourselves that the plaint is sound,
If you'll only just use your eyes.
I've done; but I reckon there are some
Have better cards yet in their hand;
But *if you stop those creepers that come*
You'll have shown us a helping hand.

ELTIJE.

INDIAN MARKETS FOR TEA.

HE question of opening up markets for the commoner classes of s is one which several directors of home companies have called ention to, and which a few years ago engaged the minds of a large nber of the Calcutta agency houses, and resulted in a feeble empt at some action. The outcome of the then scare was the ting of a company, entitled the Indian Supply Co., Ld, with a ital of Rs.1,00,000. It was intended that the capital of the com- y should be three lakhs, but the apathy of the interested public s so great that only a lakh or so could be raised; and judging m the last report published by this company, we cannot say either t much success has attended it, or that much enterprise has been played in carrying out the purpose for which it had been intended; fact, the greatest apathy seems to have been displayed by its nts, and every year some excuse made for frittering away the all capital of the company. It is now ten years since the Indian pply Tea Co. was started, and the capital has decreased very rly 50 per cent. With a capital reduced to Rs.60,000, the s has been during last year Rs.3,000 and outstandings written as bad Rs.1,662-5-6. A pretty balance sheet, is it not? As excuse for this disgraceful conduct of a public company, the ine and its consequent distress are pleaded. What famine have had to do with the tea-drinking public of India is a thing ond us, as one would naturally think that it did not reach so far he class who drink tea; and we would ask what is the necessity keeping a large stock of tea when there are weekly auctions where quantity could be obtained? The object of a company is to mote the drinking of our common teas among what might be med the middle classes of India, and it is surely badly served by ing up a quantity of common tea, holding it for a time, and then ting it again on the public market when it has deteriorated. We uld like to know what right any company of this kind has to d a stock of common tea that in one transaction results in a loss Rs.3,000 by resale. We would have been better pleased to know nething of how the teas were being pushed, and think the Rs.3,000 ght well have been spent in appointing a traveller to go about l sell the teas, whose remuneration should have been partly by and partly by commission. There are an immense number of ropeans of other industries outside tea who would be only too d to get a half chest of good sound drinking tea at, say, eight nas per lb., and for this class catering should be included in the ogramme, in addition to pushing the common teas. There are ndreds of other ways in which consumption of common teas might fostered. Why not engage the services of all the butlers on ard the hundreds of inland craft that ply on these waters? If se men were paid a liberal commission, look at the dissemination thousands of packets, by means of the travellers, on these steamers. r few, if any, would leave the steamers (after having tasted a cup tea) satisfied, unless they carried a packet away to show their *zilog* on their return to their native heath. That there is a big ld for enterprise no one doubts, but there must be energy displayed, l not the style of *laissez faire* that at present characterises this dertaking, unless all the shareholders wish to see their lakh of pees melt in the air.—*The Capital.*

SERDANG* AND THE LIBERIAN COFFEE ENTERPRISE.

(*By a Ceylon Planting Visitor.*)

THE description of the soil and rainfall sent to me some time back by the managing partner of one of the plantations there had given me a high idea of the country; but the reality I found far beyond anything told me.

The plantations I visited are situated at about 55 miles from Belawan, the shipping place, 40 of which are covered by rail to Lobocq Pakam, and the extension of it is being considered and will soon impose itself.

I must not forget, however, to mention *Keboen coffee*, the first plantation I saw on the main road at about seven miles from the rail and where the oldest trees exist. These I did not see, but a field of eight years old, bordering the cart road, was very luxuriant: topped at 8ft. they were touching at 10ft., without vacancies, under the shade of young cotton trees (kapok), which I would not recommend. Some young Arabica did not seem so promising owing, I think, to the too retentive flat drained land.

On Begerpang, the largest plantation of Serdang, with 300,000 trees planted within the $2\frac{1}{2}$ last years, the growth is all what can be desired; for even on the St. Paul's river (Monrovia), in the best cultivated gardens, I have not seen better. It is bearing heavily from after the second year (which *does not* seem to injure the trees later on).

In other plantations I have seen fields of trees up to four years, which all came up to the highest standard.

Hemeleia vastatrix is not unknown, but does not affect the trees in any way, on which it is but sparse.

GREEN BUG also is there, but only on trees from one to two and-a-half years old. It then seems to cease reproduction.†

The distance adopted is 10 by 10, which is fully necessary, and I am convinced that the returns at four years will be from 10 to 12 cwt. per acre (about 3lb. per tree).

A few cacao trees raised from seed obtained from Peradeniya (a forestero variety) planted on the edge of a ridge and uncared for had given an average of 40 pods at $3\frac{1}{2}$ years.

The altitude of the Serdang plantations is about 300ft., and the *rainfall* averages 100 inches, well distributed through the year. There is a heavy dew at night, clothes in the bungalow felt damp in the morning. The temperature is the same as in Ceylon at the same elevation, but the nights are cooler. Cyclones are unknown. There is less *fever* than in the Ceylon lowcountry, and living is cheap and comfortable.

The lay of land is generally undulating at such a gradient that roads have seldom to be diverted from the straight line, *high forest* covers the main part of it, with much good timber, and *lalang* (illuck grass) those parts which have been cultivated by the natives and being burned yearly, forest growth is prevented.

THE SOIL in the forest is a thick layer of humus covering a silicious brown loam of great depth. Thousands of square miles are in the same condition between the sea and the dividing range on the N. E. coast. I have seen nowhere in Ceylon anything to compare to that part of Sumatra as to general conditions required for lowcountry products, and Dutch and German planters have assured me that the S. E. part (Palembang) and the Padeng west coast is even more fertile.

Deli and Serdang might well be called the stoneless country; the ballast for the railway has to be imported from Penang, and there is no gravel for the roads. The land in Sumatra is leased for 75 years. In Serdang the Sultan requires at present $8 per bouw ($1\frac{3}{4}$ acres) and a yearly rent of $1; besides the Government survey costs 1, 10 gulden per bouw.

THE JAVANESE LABOUR is unlimited, and the cost is cheaper in the end than our decayed Tamil labour. It is indented for three years. A premium of 30 guldens (1 gulden = 1*s.* 8 1-3*d.*) free passage 10 g. advance 30 g. Monthly wages, men $6 ($1 = 1*s.* $11\frac{1}{2}d.$), women $3:

* A Dutch protected State of N.-W. Sumatra.

† This would be in favour of my theory that another mysterious (*root*) disease was in Ceylon in conjunction with these two and was the main cause of the destruction of the coffee. A root disease also affected the cacao for several years (1884-91), and was the reason of the abandonment of one-third of the acreage then in cultivation.

work 6 to 11-30 A.M. and 1 to 6 P.M. Only two free days per month, periods of sickness deducted, no kanganies, mandares or overseers appointed by the manager. No crimping nor bolting possible by good regulations.

THE FELLING AND CLEARING is generally done by Battaks, the aborigines of the country, and cost $10 per acre. They also contract for the *buildings*, such as sheds and lines at a more moderate cost than in Ceylon.

A certain amount of Tamils (called Klings there) are also employed, more specially as cartmen.

The Malays have many privileges, and only few of them care to serve as house servants. They have their own lands that they cultivate, but nowhere have I seen a wet paddy field. They have groves of nutmeg trees; but the produce is all consumed in the country, for no export is reported, so are the cocoanuts and the arecanuts, the former being sold at $5 per 1,000. Nearly all the rice is imported from Singapore or Penang, being raw rice from Siam and Burma.

The Chinese work on the tobacco estates, where their more skilled labour is more remunerated or have holdings of their own, particularly in the tobacco country where they produce large quantities of sweet potatoes, manioca, beans and vegetables. They do nearly all the trade of supplies, none being given to the coolies by the managers of plantations. Nearly all the artisans belong to that race.

The universal language is Malay.

The interior of Sumatra is practically unknown. Exploration requires the special permission of the Resident on account of the danger. It is inhabited by the Battaks, a warlike race of good physique. They have no racial connection with the Malays, who came over from the Straits some centuries ago and repulsed them. Their features have much affinity with those of the Tamils, but of a paler hue, probably due to the more cloudy sky. They have their own writing and make their own weapons; but, nevertheless, are cannibals. One of them working on the plantations admitted in my presence having eaten human flesh. They cultivate dry paddy and other grains, sweet potatoes, manioca, tobacco, etc. They are very jealous of their females. I was told that they were not fetiches, but could obtain no details as to their religions.

THE PRUNING OF TEA.

SOME SUGGESTIONS FOR AN IMPROVED SYSTEM.

(By a Planter in India of Twenty-four Years' Experience.)

AFTER a long experience I venture to give some of my ideas about pruning. I want to show that *cutting down* is a serious mistake, and to propose a system by which this cruel operation can be stopped entirely. If any one will take the trouble to examine a bush which is about to be sacrificed, he will see by marks and signs that the great stems are of various ages. Some of the branches will show the scar of a previous cutting low down near the ground, other branches will be found with a clean stem almost level with the top of the bush, and the marks of the annual prunings will be found at intervals on all the stems. This will prove that some of the branches grew up from the ground or out of the old branches after the last cutting down. The theory which I have evolved from this fact is that branches should be eradicated only when they cease to yield well and that the bush *will* constantly renew itself with fresh vigorous branches.

I have for many years been working patiently to brin garden in my charge into good growth, and I have succeeded, am confident that I can now keep my bushes at a constant lev in full vigorous growth, without "cutting down" a single bus in course of time I expect to get all the bushes to be one heigh of equal bearing surface. During the last four years I hav ceeded in getting the height and surface more uniform, but w began I had bushes of all sizes; the biggest are three feet up pruning point, and I refuse to cut down even these which are too high.

At each pruning I cut off the new wood close to the last pruni any bush over two feet in height, leaving only about one inch o wood; on the lower bushes I leave from four to eight inches of new so that in course of time the smaller bushes will reach the hei the best. In course of time I shall reduce the height of the b which are too high. Any new wood found growing from low is cut at about two feet from the ground, and one or two tallest branches are cut out, the weakest being selected for sac I am not sure that three feet is too high, because I find bus this height have new wood as thick as one's thumb, and by th of the season they have grown to about 4½ feet, which is well reach of the pluckers. If my system can be adopted, the after eight or ten years would be that each bush would be com of straight clean branches without a break, to the height of tw and above that there would be visible the scars of each succ pruning. And then year by year the weakest of these would down as low as possible, and replaced by new wood from belo

I have been applying this system thoroughly only for four and I notice that most of the bushes have one to three of thes clean stems; and the older branches show good growth ow judicious topping off of weaker parts. And when I find that branch has sent out good new wood from low down, and the t ceased to give strong new growth, I cut off the piece above th wood. Only four years have shown such a vast improvemen I am now confident of being able to renew each bush in course of

I recognise that there is a short cut to this result, *i.e.*, to cut and re-grow the bushes, but I should have to sacrifice a grea of tea, and I consider it wiser to sacrifice the appearance bushes to keep up yield of tea, than to sacrifice the yield to ge bushes. "Cutting down" is a short cut, and as usual with cuts it proves to be the longest way round. The object of c down is eventually to increase the yield, and no nooner has this been attained than it becomes necessary to resort to it. But that by a system of constantly cutting out *only* those bra which show weakness, the bushes can be kept at one constant and surface, and will give the same yield from year to year wi any limit of time. It is also reasonable to think that branches clean from the ground to the pruning point will have a freer f sap than those which have been cut and hacked at yearly int One must have at least two feet growth to give a large surfa bush, and if you can get the sap to flow *straight* up to this ne height the result must be increased yield. It is necessary t out the bushes now and then, and I think that intervals of tw are quite sufficient. Thus one half of a garden would be clean thoroughly, all whippy and undersized wood cut off, and the half of the garden should be light pruned, and all the *inside* g left alone, and only the surface growth should be cut off.

This light pruned part would begin to yield first, and woul a considerable amount of leaf before the other part can be pl The *surface* only of each bush should be plucked, so that an shoots which grow from inside are not touched until they app the surface. These will give new straight wood to prune on end of the year. At first I had to do my pruning with two coolies; the ordinary lot simply pruned the bush leaving the re amount of new growth.

After them came the knowing lot who selected hard woo cut out. My work was to examine this cut out hard wood that no vigorous parts were cut away. If I found a knot with wood on it, say about ¼ inch diameter, I explained to the man had lost the yield of that piece of wood for a whole year, and wanted only weak wood to be cut off. This required a great d attention. Now I make the men collect what they cut off an up the bits at intervals and I examine those heaps. But ev ordinary coolies are getting to know what I want, and as onl the garden has to be pruned with discretion, there is not muc of serious over-pruning. The rest of the garden is only "cut

The Wynaad and the Planting Industry of Southern India, by FRANCIS FORD. Re.1.

The Planting Directory of South India. Re.1-8.

Tea Planting from Seed to Cup in Tamil, with English Translation. Rs.2.

Sketch History of the Planting History of Wynaad, by the late ADOLPHUS ARTHUR WRIGHT. Re.1-8.

Report of Observations of Injurious Insects and Common Crop Pests during the year 1883, with Methods of Prevention and Remedy by Miss ELEANOR A. ORMEROD, F.R.Met.Soc., &c. Re.1-8.

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t quite straight, but with a view to giving as regular a surface as ssible. I like to see the bushes "round," it gives more surface, d the side branches can be of the same length as the centre ones. ıave seen a piece of old tea yielding well which had never been cut wn,—it averaged about three feet to the pruning point; and regarding e fear that a bush will get too high this can be obviated by not ıving too much growth at each pruning. If you start pruning a w shoot at two feet, and leave only one inch each year, this shoot will ly be three feet in height in twelve years; and supposing that by that ne it shows signs of getting weak, you can cut it out entirely, and place will be taken by other shoots which have grown up in the terval.

With a new extension, and this system of pruning, I imagine that e greatest yield would be attained over the course of any given ımber of years. No branch should be cut below two feet, and I ally think that with a good class of plant three feet would be the best ight. A bush of this sort would not grow much brush-wood inside. ıiling a ready made garden which has not been hacked and hewed, is possible with patience and discretion to get the place round adually. Rather than cut down a gnarled bush, I would leave it ıpruned for two years; it has not sufficient energy to grow fine w wood in one year, but at the end of two years some of the rowth would be found of a decent size. With a little humouring is bush will begin to send out good wood from lower down, and it ill in time regain vigour and youth, whereas one or two "cuttings wn" will leave it an old wreck with only a few twigs to show that is alive. I think that as a rule tea is "cut down" not because it s fallen off in yield, but from the fear that it will soon begin to eld less, and that the bushes will get too high. I would earnestly commend to any one who contemplates the renewal of a plot of a by cutting down to give it a year or two more of full growth, inning out some of the worst branches, keeping a careful record of e yield as compared with past seasons. This advice would apply pecially to any manager taking charge of a new garden, which ccording to his opinion) has been ruined by past bad pruning, or verplucking. As long as a branch can give new wood as thick one's little finger there is no fear of its power of yielding ell; then why should thousands of such branches be cut down? And nsider the loss of plucking surface. As an illustration, take a mpass and draw concentric semicircles on a straight line, have one 1 inch radius, another of 2 inches, another of 3, and another of 4. his last semicircle of 4 feet represents the bush which has to be ıt down, and the intermediate lines will show the gradual increase the original surface, and I am quite convinced that the greatest ssible surface (*i.e.*, all the bushes touching) can be maintained by mply cutting out weak branches, and pruning any new growth at ıe level of the surface of the bush.

I must admit that I have never seen a whole garden pruned on ıis system from the very beginning, so that I must also admit that ıe universal practice is opposed to my theory, and it is always rash suggest that the universal practice is wrong. However, I venture do so because I have worked hard at the problem for six years on n old and much hacked estate, and at the end of this time, of which nly four years have been *fully* given to the idea, I can see a very reat improvement in the appearance of the bushes, and I have also he *proof* of the benefit to the bushes, because I make *more* tea of ery much better quality than my predecessors made in former imes.

If any one has had experience that this system is not the best, I hould like to hear from him. I imagine that this system would ive best results in Ceylon, the bushes being pruned every second ear; one quarter of the estate cleaned out and pruned thoroughly, ne quarter pruned lightly, and one-half not touched at all. The wo years of growth gives the new wood time to be well matured efore it is cut, and any wood that has not grown to a standard size an be shaved off close to the branch it started from.

This pruning at intervals of two and three years is customary in eylon. I have little doubt that it would be best for India also, but he annual pruning has become so firmly fixed that I do not dare to uggest any departure. I can only say that I tried the plan on a patch f Manipuri indigenous, and it gave 14 maunds of tea per acre, gainst a yield of 12 maunds from the rest of the plot which was runed as usual.

That was long ago, and I had not sufficient courage or power to ontinue the experiment on a large scale. I have nothing to say to hose who are in charge of estates on good soil and yielding more leaf than their labour forces can handle, but there are many properties which might be saved by patient and careful fostering of the bushes, and by refraining from the established custom of cutting down. The planter has an instinctive horror of a "*knot*," and to get rid of the knot, he gets rid of the bush. There is also an idea that the tea plant has not the power to propel the sap to a distance beyond two feet or so. Naturally, when the old stem is interrupted at intervals of a few inches, and is also tapped by small side growth, the sap does not show great vigour; but a stem which rises clear from the ground up to the yielding part and having no small branches to divide the sap will show great strength and give a good crop of strong well-grown leaf. Whether straight or gnarled the life of a branch comes to an end sooner, or later, but it is folly to cut it out before it has given signs of weakness. One should have a standard gauge of wood below which the branch should come out, and each branch should be left as long as it grows wood of the standard girth. On some soils planted with indigenous, half inch diameter might be taken as a gauge; on other soils with hybrid plant quarter inch might be the limit.

My principles now are not to sacrifice one inch of yielding surface area, and to increase the surface year by year by adding about four inches growth at each pruning to the smaller bushes; to carefully cut away poor wood so as to give more sap to the branches which are yielding well.

Beyond this, at present I have not sufficient labour to take all the leaf that is grown, so that manuring or anything of the sort is not advisable. Having mentioned the word manure, I cannot refrain from repeating what I said once before that manuring should be adopted, *not* to improve the bushes, but as a separate means of utilising capital to good profit. In course of time, I expect that manuring will become general, and that it will be found an excellent source of revenue. You will pour money on the roots of the plants, and take it off the tops with an increase of about 10 per cent. With very ordinary care, one thousand rupees applied as manure to a given plot of land *annually* should give a return of eleven hundred rupees, that is to say, 10 per cent. At this rate a big company would find it more profitable to spend R50,000, getting a return of R55,000 per annum, than in spending an equivalent sum in extending its area of plant.

With pruning on the system detailed above, and liberal manuring every year, the yield of a whole estate should not stop short of 1,600lb. of tea per acre. And this would be better in every way than having an estate of double the area yielding 800lb. per acre.—*Tropical Agriculturist.*

ROUND THE BUNGALOW.

THE want of a sufficient quantity of vegetables is frequently felt by those who do not possess a kitchen garden. Considering the important part vegetables take as health-producers, it is surprising that planters ever allow themselves to go without this necessary adjunct to their bungalows. To those dependent on their supply from the weekly market, a good way of keeping them fresh is here given. Even vegetables, such as cabbages, lettuce, &c., should be kept on a damp shelf and covered with a cloth wrung out in coldest water procurable. Carrots and all root crops are best kept on a layer of fine sand; do not attempt to wash these till required for use. Potatoes often get rotten and mouldy for being packed away in a tin box. This most necessary tuber should be put away on dry sand, first taking special care to see that they are thoroughly dry. An occasional sunning will keep them good for months.

Salads of cold meat, fish and eggs are generally appreciated by most people, and I have copied a few from different sources which I have tried and have been generally approved.

Fish salad. Take a tin of any fish selected. Have a couple of cos lettuce well washed and wipe dry, *tear* the leaves lengthwise, add a small quantity of tarragon vinegar, a little pepper and salt, six or eight tablespoonfuls of pure salad oil, and two of vinegar, and if procurable a small cucumber sliced fine or tomatoes. Arrange according to taste.

Waldorf salad. Waldorf salad is made from apples and celery. Use mayonnaise dressing, into which you have stirred whipped cream. Pare the apples and chop them rather fine; cut the celery, mix the two together, and sprinkle over a little lemon juice, salt and pepper. Make the mayonnaise exceedingly stiff; just

before mixing it with the apples and celery, stir into it sufficient whipped cream to make it light in colour, but not enough to spoil its consistency; add a few drops of green colouring; mix the whole together, and serve on lettuce leaves.

Forced eggs. Pound and pass through a hair sieve the flesh of three large anchovies, freed from the bones and the skin. Boil six fresh eggs for ten minutes, and when they are perfectly cold, halve them lengthwise, take out the yolk, pound to a paste, with some fresh butter; then add the anchovies, a little mace, and as much cayenne as will season the mixture well. Beat these together thoroughly and fill the whites neatly with them. Serve with mayonnaise and lettuce.

NOW UP AND NOW DOWN.

NOTICE the slender column of mercury in your thermometer. To-day it is longer than it was yesterday; to-morrow it may be longer still, or much shorter; you can't tell in advance. So it varies with the amount of heat in the atmosphere. Very good; but we all knew that before, you say.

Take note of another measuring instrument, then; one that you carry about whithersoever you go. We often hear one person say of another, "His spirits are very mercurial," meaning that they rise or fall under slight influences. But others have protracted periods of depression of spirits, sometimes threatening permanent melancholia. In fact, instances of this kind are getting to be alarmingly common, and any suggestions as to the cause and the remedy must be welcome to society at large.

Speaking of a recent illness of her own, Mrs. Hagar Percival says the doctor pronounced her ailment to be "nervous debility." The phrase is familiar and expressive, and the doctor used it in the ordinarily accepted sense. After all we seem to need more light. Perhaps we shall get it by turning a leaf backward and finding out how the trouble began.

"In July, 1889," says the lady, "I felt strangely weak and out of spirits. I could scarcely persuade myself to eat anything, and when I did the food caused me much distress in the stomach and pain in the chest. Neither did I get any strength from it, but grew more weak and nervous. Later on I had frequent attacks of dizziness and fainting fits, which would come upon me in the street, so that I often came near falling to the ground. Sometimes I had two or three such attacks in a single day. The doctor said I had nervous debility, but the medicine he gave me did no good.

"Better and worse I suffered in this manner for about three years, no treatment availing to relieve me. At Easter of 1892 my mother brought me a bottle of medicine of the same kind that had cured her of liver complaint. I began using it, and in a short time I could eat better, and my food digested without giving me any trouble or discomfort. I grew stronger, the fainting fits gradually ceased, and I regained my health. (Signed) Hagar Percival, 25, Lind Street, Country Road, Walton, Liverpool, July 19th, 1893."

In a letter, dated November 30th, 1892, and written at his home, 142, Shepherd's Bush Road, London, W., a correspondent states that in the year 1883 he fell into a condition of nervous debility. He took medicines in plenty, but grew worse and worse notwithstanding. The early peculiarities of his case were exactly the same as in the case of Mrs. Percival, above named.

"One day," he declares, "a friend of mine, Mr. Charles Swan, of King's Street, told me of a medicine from the use of which his sister had derived great benefit under like circumstances. I had once began taking it, and before I had finished one bottle the pain and distress left me, my nerves were steady, and I gained strength. After I had used three bottles I was in as good health as I was before the attack the previous spring. Appreciating the value of a remedy which proved able to do what no other could accomplish, I am perfectly willing to have the fact made public. (Signed) Frank William Deacon."

The nervous depression in both these cases, as in most others, was the direct consequence of the circulation of impurities of the blood. The extreme melancholy and distortion of judgment witnessed in hypochondriacs arises from the same cause; and (*this point is for your memory*) the cause underlying all, is indigestion and dyspepsia, which creates these impurities in the stomach and scatters them through the system.

To have strong nerves we must have pure blood; to have pure blood we must have perfect digestion, and to have *that* we must do what these two people did, use Mother Seigel's Curative S They used it as soon as they heard of it. Warned by their nee suffering, *you* will use it the moment you feel the first sympto the coming evil.

MARKET REPORT.

COFFEE.

Messrs. R. J. Rouse & Co's Weekly Coffee Report (*July* 29, 1898) sa Public sales were only held on Tuesday this week in consequence o August Bank holidays and will not be resumed till Thursday next, A 4th. Large supplies were brought forward, however, on Tuesday, b demand was slow, and values ruled generally easier.

Only 80 bags East India were offered and part sold at barely s prices.

Costa Rica, which formed the bulk of the catalogues, met very competition, and a large proportion was bought in, the rest selli easier rates.

A firm tone has prevailed in the Terme market on smaller Bra receipts, and quotations mark an advance of about 6d. in the week.

Messrs. Wm. Jas. and Hy. Thompson's Report of the Colonial Marke the week ending July 27th, 1898, says :—Bank rate 2½%. Bombay Exch closes at 1s. 3 1/16d. Brazil Exchange 7 9/32d. Rupee paper 3½% Silver 27¼d. per oz.

A flat tone has prevailed in this market throughout the past business being on a very small scale. The moderate supplies o were only partly disposed of at somewhat easier rates. Public sales be suspended from next Thursday until the 4th August. Brazil Ma are very quiet.

Daily receipts averaged 8,000 bags in Rio, and 17,400 bags in Sant

Futures have shown more firmness, and closing prices are 3d. t per cwt. above our last, viz. :—Good average Santos in Havre, Septe delivery, fcs. 36.25, in Hamburg pf. 30¼, and No. 7 low ordinary R New York $5.50.

To-day's London official quotations are :—

	Sept.	Oct.	Dec., '98.	Mar.	May,
SANTOS ...	29/	29/6	29/9	30/3	30/

We quote :—

Ceylon, mid. to good mid.	96/@107/	Costa Rica, mid. to fine...	69/ @
Do. small to low mid.	80/ „ 93/	Do. ord. to low middling.	41/ „
East India, mid. to good mid...	75/ „ 92/	Jamaica, good to fine ord.	32/ „
Do. small to low mid.	58/ „ 73/	Do. greenish to fine colory...	65/ „
Guatemala, mid. to fine...	68/ „ 98/	African ...	26/ „
Do. good ord. to low mid...	52/ „ 67/	Columbian, ordinary ...	34/ „
Salvador, good ord. foxy greenish...	37/ „ 41/	Do. good ord. to low mid...	39/ „
		Do. mid. to fine...	62/ „

Receipts in Brazil to 27th July compare as follows with pre years :—

	1897-98. Bags.	1896-97. Bags.	1895-96. Bags.
RIO	211,000	294,000	293,000
SANTOS	367,000	487,000	403,000
	57,8000	781,000	696,000

In Sale—

13 casks & tierces 1 barrel Plantation Ceylon ...	85/ @
152 bags Neilgherry East India partly sold	44/6 „
8,616 bags Costa Rica, part London cleaned, part sold ...	31/ „
1,427 bags Guatemala „ „ good part sold ...	29/6 „
518 bags Mexican „ „ „ ...	35/6 „
65 bags Honduras	50/ „
363 bags Nicaragua, good part sold	36/ „
949 bags Salvador, part London cleaned, part sold ...	37/ „
1,662 bags Columbian „ „ chiefly sold ...	35/6 „
41 bags Vera Paz London cleaned	35/6 „
12 bags Peruvian bought in.	
10 bags Hayti bought in.	
3 bags African bought in.	
18 bags Liberian from Accra	32/ „
4 trcs. 27 brls. 65 bags Jamaica, partly sold ...	27/ „
125 packages Abyssinian Mocha bought in.	
500 bags washed Santos, small part sold	39/ „

Landed last week ... 768 *tons. Deliveries* ... 624 *tons. Stock*...19,689
Do. last year ... 416 „ „ ... 656 „ „ ...13,793

PLANTING OPINION.

A WEEKLY JOURNAL

WRITTEN BY PLANTERS FOR PLANTERS.

L. III.] COONOOR, SATURDAY, AUGUST 27, 1898. [No. 34.

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DVERTISEMENTS.—From the 1st October, 1897, the charge for advertisements will be: 4 as. per line for the first, 3 as. for the second, 2 as. for the third and succeeding insertions. Five-line advertisements Subscribers will be inserted for three issues for one rupee; non-Subbers will be charged two rupees.

OMESTIC OCCURRENCE.—The fee for inserting a domestic rrence will be *One Rupee* for each insertion, payable in advance.

.B.—Remittances should be sent to the Manager, "Planting Opinion," 2, Second Line Beach, Madras.

IMPORTANT NOTICE.

The Business Offices of this paper having now been oved to Madras, all remittances should be made pays to the Manager of *Planting Opinion*, 11 and 12, ond Line Beach, Madras, who will also attend to all ertisements, &c.

Letters to the Editor should be addressed to Coonoor, usual.

SEASON REPORTS.

TO OUR SEASON REPORTERS.

Please post your next reports to reach Madras on Friday, the 2nd September, 1898.

Season Reports should be sent to the Printers, Messrs. Addison & Co., direct, and not to *Planting Opinion* Office.

THE INDIAN TEA ASSOCIATION.

The Assam Branch held its Annual Meeting on 16th July, the Indian Tea Association followed with its annual general meeting on 16th instant. Extracts from the reports are given elsewhere in this issue, and some points deserve special comment. For instance, it is of interest to note that the total planted area represented by the Association is 308,920¾ acres. That this shows an increase of 33,473¼ acres on the figures of the previous year, points to increased production. The Association levies an assessment at the rate of one anna per acre, amounting to Rs.19,307-8-9, thus providing itself with a handsome income. Then again, the report of the Assam Branch informs us that the report on tea culture for 1897 shows that the total number of coolies employed permanently is 442,608 and temporarily 35,602, showing a total of 478,210. In 1896 no less than 81,115 coolies of all classes were imported into Assam, not including those imported for the Assam-Bengal Railway. Figures such as these have a double interest; they prove the importance and power of the tea industry, but they also show of what great moment to tea-planters are all questions affecting their labour supply, a considerable portion of which is

imported from long distances. On this latter point the Hon. Mr. Buckingham, the Chairman of the Assam Branch, had a good deal to say. Planters in the North, like their brethren in the South, have had labour troubles. Government is considering some of these; and the planters are evidently a little doubtful whether the eventual action of Government will be altogether to their liking. Mr. Buckingham remarked: "I think we ought to be prepared for any radical changes in our Coolie Laws. From what I have been able to gather, we must be prepared for certain proposals which will not be, by any means, acceptable, such as the reduction of contracts from four years to three." He added that another question that would affect planters most materially was the raising of the rate of wages from five and four to six and five rupees a month. Finally, he made this remarkable statement:—"The protection we receive from the Act becomes less with each amendment, and doctoring of the above description will certainly drive it out of existence." The responsibility for this rests solely with the highest authorities, for Mr. Buckingham asserts that every Chief Commissioner of Assam has testified to the coolie being looked after and cared for. He is right in stating that emigration should, therefore, be encouraged by every possible means in the power of Government, and not checked by enactments and artificial difficulties which undoubtedly increase the expense of importing, and throw an immense amount of extra work on Government officials in Assam.

That South Indian planters will agree with Mr. Buckingham on the above points, goes without saying. They will also be interested to find the subject of a chemical expert for tea districts still under discussion. In the North, as in the South, there is the chance of the services of a really good man being lost in consequence of delay. Then again, remarks on the American Market Fund are worth noting. It is suggested that a tax should be raised *by Government* for distributing the cost of placing tea in other markets. Travancore contributes to the above fund, but we doubt if any other district in the South takes special steps towards the discovery of new markets, or the development of those already known. Yet Ceylon not only spends large arms in America; it has given £200 towards the introduction of tea to Russia, £200 to Belgium, 5,000lbs. of tea for Germany, and the Ceylon Government granted £500 for advertising tea in Russia. With new areas constantly being opened up, new markets must also be sought, or a reduction of prices will be inevitable. And this question of price should be watched very closely just now, lest faults be laid at the door of Currency that rightly belong to the planter himself. It is obviously useless for him to argue about Currency matters while neglecting his own interests in respect of over-production, or a want of energy to go into the subject of the development of consumption. Competition must necessarily increase, it will not slacken. The planter must gird up his loins for the struggle, and he who thinks to win through the intervention of Government as regards the Currency question will fail, while his brother who improves his crops, and at the same time helps to make markets for them, will come out a victor. However, it is not out of place to notice here that the General Committee in India of the Indian Tea Association adopted the following resolutions and cabled the substance thereof to the London Committee of 15th June, 1898:—(1) That a gold standard is not needed in India even if it be practicable to establish it. (2) Tha cost of establishing it with or without a gold curre prohibitive, and that an undue proportion of such cos fall upon tea-growers. (3) That therefore in the op of this Committee the Indian Currency Committee sh be directed to enquire into the question of how to re the mints to the free coinage of silver with the least i venience to the trade of the country.

We attach importance to the proceedings of the I Tea Association in regard to every detail. Some p have no direct interest to our readers in the South be the example they afford of the manner in which p *local* interests receive the attention of the Central As tion. Other matters are of great importance to al planters in India, and we trust that these will be spe studied, and that co-operation will be arranged whe possible. There are various subjects touched upon i report, to which we make no special allusion here, but remarks are extracted on another page. After cons ing the whole report and its indirect bearings on tea industry in Southern India, we find ourselves reve to the section—though in another branch, so to s that first attracted us. The Labour Question pervade whole report. Its gravity is felt more than it is expre but expression is so far given to it that itappears tha Indian Tea Association has now made a very long s towards the carrying out of its scheme for establishi Central Recruiting Association. A Board of Manage has been in existence for some months. It has held se meetings, and having devoted considerable time and a tion to the compilation of the Articles of Association Form of Agreement with relative schedules essenti the formal incorporation of the Association, it awaits the final reply of intending subscribers to scheme before beginning active operations. The r states that it is understood that a majority of the dis of Assam, Cachar and Sylhet, representing upward 84 per cent. of the cultivated area, are prepared to join give the Association a trial, in which case it is under that operations would commence as from the beginni season 1899. The progress of this movement wil carefully watched no doubt, and it is to be hoped great good will result from it. In many ways the I Tea Association is on a widely different foundation the U.P.A.S.I., but there are also many points of re blance. To some extent the two might co-operate than they have yet arranged to do. Meanwhile, probable that each could learn some useful lessons fro other.

THE WORLD'S COFFEE CROP.

THE State Department at Washington has issued a r upon the coffee crop of the world. Probably the figures therein may be safely accepted as approximately co but though the report is interesting, some of the deduc arrived at by the writer are amusing rather than ins tive. Mr. FRANK D. HILL, United States Cons Santiago, is responsible for the report, and the line he is revealed in one sentence, where he says, "as a rule a yield for several years is followed by a rapid falli each subsequent year up to the point of ceasing to yi This is rather a sweeping remark. It means nothing

r less than that when a coffee planter has had several od crops in succession, he had better think of selling his ate, for it will gradually cease to yield! The most ious fact is that Mr. HILL cites Ceylon as proving this. points out that in Ceylon the exportation rose to 892,454 gs in 1869-70, and declined rapidly year after year, ng now reduced to about 50,000 bags annually. Not a rd is said to indicate that there was any special or ceptional cause for this falling off. Noting this, and owing what that cause was, our readers will perhaps ach less weight than Mr. HILL does to the similar luctions of exports that have occurred in other countries as ll as Ceylon. He says that in Java, Padang, Macassar, ., where the product reached its height in 1883 787,342 bags), the production is now one-half that ount. In Central America a very sensible decline has in during the last three years, and it promises to become ll more accentuated. The same thing is observed in the ates of Rio de Janeiro, Minas Geraes, and Espirito Santo, Brazil, where the diminution has reached considerable ures in virtue of the abandonment of old trees. The portation from Rio de Janeiro rose to 4,209,200 bags 1884-85, from which time a decline has set in, until the op remains stationary, Mr. Lacerda putting it at about 50,000 bags annually. The exportation from Rio de neiro during the calendar year ended December 31st, 97, was 3,905,000 bags. If we were to carry these marks to a logical conclusion, we should understand that course of time all the above countries would cease to port coffee! We are told that the production of Bahia d Ceara has increased during late years; but the additional pply is not important. Are these ports near the zenith their course as coffee-exporters, and are we to look rward to their gradually ceasing such exports? We rcely think so; and even if it were so, we must bear mind that in many tracts coffee cultivation has not yet en tried, so there is room for fresh fields. The report fore us states that besides the amount shipped from ntos, the dock authorities at Rio de Janeiro, in their e returns, show that of the exportation for 1897, 300,000 gs were of Sao Paulo origin. This was due to exceptional ıses; the opening up of vast and hitherto, from a market int of view, inaccessible tracts, by the great extensions of ilway lines and the inflow of a great current of immigration. o to 1870, even in epochs of high prices, the profits sappeared when it cost, as in Venezuela, in some sections to $7 in United States gold per bag to get the produce market. To-day, while rates differ according to distance, nigh average freight charge would be 5 milreis per bag 132lb. This points towards a development of the ffee industry rather than towards its extinction; and it is arcely credible that if men are encouraged to work their tates because of a reduction of transit charges they will d those estates cease to yield as soon as they have given everal' good crops in succession.

A more cheering view is seen when we turn to remarks out consumption. It is remarked that while the increase production has been stupendous, the increase in con- mption has been quite as remarkable. The mean annual nsumption for the three decades ended with 1890 was:— 70, 6,000,000,000 bags; 1880, 10,000,000 bags; 1890, ,000,000,000 bags. As long ago as 1893 the *American rocer* estimated that the world required an annual supply of 11,050,000 to 11,220,000 bags, and these figures were further stated to be the minimum requirements. In the quarter of a century, from 1870 to 1895, the demands of the consuming markets had doubled. There is consolation in this; and if, indeed, coffee-estates gradually lose their fecundity while consumption goes on expanding rapidly, there is hope yet for the few planters who can manage to keep on sending supplies to market. If we could but share Mr. HILL's conclusions about the results of a succession of prolific seasons, we should be disposed to prophecy "High Prices" loudest at the very moment when rates stood at an abnormally low level!

NOTES.

Farming on the Nilgiris. *Indian Gardening* has commenced a series of articles on this subject written by one who tried it. These promise to be of considerable interest, and we would recommend our readers to peruse them carefully, as there is undoubtedly an opening for money-making by dealing in farm produce in the neighbourhood of the larger towns on the several hill ranges of this Presidency.

Lipton again. The following shows the push of Lipton, Ltd. It should be a good advertisement with the number of men employed and the consequent stream of spectators:—

"Lipton, Limited, has contracted with the War Office for the rations and entire catering of the wet and dry canteens of the Northern and Southern armies in connection with the forthcoming army manœuvres. Eighty thousand men are expected to be engaged on Salisbury Plain during August and September next."

Fever in Plants. Mr. H. M. Richards, in the "Annals of Botany," states that plants get fever, and the relative discomfort is greater than in animals. The onion is said to be very sensitive to fever, and gets very ill, indeed, if a leaf is broken off the bulb. The potato stands fever well; so does the radish. If hurt, they are only slightly affected. Fever in plants is accompanied by an increased rate of respiration and evolution of heat, as in other animals. The effect, therefore, of picking a flower, or tearing off a branch, would amount to cruelty to plants.

Saltpetre Refinery. Elsewhere we print a long communication from "Toda" regarding the proposed Co-operative Refinery. "Toda" criticizes our criticism at some length, but the conclusion arrived at is that, from our own criticism, we have proved that saltpetre can be turned out at Rs.50 a ton. We had no intention whatever of throwing cold water on the scheme, for we have often acknowledged the value of this alkali as a fertilizer, but we think that the whole scheme must be put on a thorough business basis before it will take a practical shape.

Orange Tree Seedlings. We learn from the *Bombay Natural History Society's Journey* that:—

"From published statements it appears that orange trees, for fruit-bearing purposes, are frequently raised from seed in America. In this country the usual practice is to sow the seeds of the citron

(*Jumburi*) and graft on to that stock, by the process termed 'budding,' the variety of orange selected. In 1881 I sowed seeds of the best Nagpore Cintra oranges, and one of the trees raised has given produce. The fruit of the seedling has more numerous seeds, a deeper colour of pulp, a stronger inner stem (endocarp), and a more abundant bitter in the skin. It is nearly equal in size with its parent, and some of the fruit is tight skinned, other specimens having loose skins. As a fruit tree, this seedling is decidedly inferior to its parent. For the purpose of obtaining improved varieties, it is desirable to raise trees from seed of superior oranges, and those which prove inferior may be grafted with approved kinds after the natural fruit has been produced."

Black Pepper. If we are to accept the figures of the *Planter* as conclusive, the cultivation of Black Pepper should be a most profitable acquisition to planters residing within the zone where pepper flourishes. That an acre will carry 500 betel trees, and each tree carrying a vine will produce 250 per acre, without any material cultivation, reads almost as a dream; and putting the betel supplied at 500 trees, say, at Rs.100 per acre,—we only put this forward as a surmise,—we have the enormous return of Rs.350 per acre—a figure, considering the very little attention and curing of crops, as beyond the happiest dreams of any planter,—either tea or coffee—at present existing and perspiring under an Indian sun. Whether there are blights or other enemies to the crop we are unaware, but the figures as they stand make us wish we could take up about 50 acres of pepper in a favourable locality, and exist.

The Wily Chetty and the Innocent Planter. The following, communicated to us by a correspondent, goes to prove that the "ways that are dark, and tricks that are vain," are not only the accomplishments of the "heathen Chinee," but may be found occasionally within the limits of this land of exile:—

I used to think I was as cute a young man as any to be found that I have rubbed shoulders with,—a smart Yankee, and not been worsted, and never yet was taken in by any sharper. I confess, however, to having been at last discomfited at the hands of an Indian bazaar man. The way of it was this. I am a planter in a rather out-of-the way district, though my isolation is compensated for by the suitableness of the place for the purpose I selected it, which was to grow tea on the upper portion of the land and coffee on the lower.

In course of time the firstfruits were gathered in, and I wanted to sell the strippings and tailings of my crop locally, and called in the native dealers to whom I offered them.

After the usual bargaining, I accepted the offer, Rs.4-8 per full bushel for 100 bushels; saw it measured and tied up in sacks, and made out the bill. It then occurred to me that the merchant might buy some of my tea. It was my first attempt at manufacture, and was not particularly good, as coolies were new to the work; so, rather than send it to Mincing Lane, to get a bad name for the estate, I resolved to sell it in the country also. The Chetty, however, would not buy both the tea and coffee, but agreed to take the tea if I would allow him to give back the coffee for it. I was very glad to accede to the proposal, as coffee is always more easy of sale than tea, so 12 annas per pound was arranged as the price. The coffee bags were, therefore, emptied; the bill amended, and the tea chests removed.

A week passed without payment being made; and as it was still delayed, it was necessary to use threats, and, at, last to file a suit against the man. In due course the case was heard; but imagine my surprise at the novelty of the defence set up. The man said he did not buy the tea, but gave coffee of equal value in exchange for it. After a careful hearing, the plea was sustained, and a decision was given in his favour. I protested against this view of the matter, but to no avail. I was told the case was as clear as noonday. I had sold, and the merchant had bought, coffee!!

Coffee Adulteration. In recent issues we have rep edly drawn attention to the serious hindrances that the coffee industry is subject by the continued adulteration with chicory. We now a dealer at the Cape has been fined for selling a mix containing 98% of chicory!!! This is a matter U.P.A.S.I. should take up. The British public have an that a *certain* admixture is necessary for a good cup of c —an idea as erroneous as it is prejudicial to coffee pla generally, when the comparative prices of chicory and c are considered. We rarely, or never, take up our excha without seeing cases of coffee adulteration, but the imposed are so manifestly absurd, considered with the p accruing to the delinquents, that a representation fro influential body interested in the trade to the Lo Chamber of Commerce seems to us the only mea getting the ear of the magistrates and the B.P. gene It is an exploded idea that chicory is essential to make c palatable, and the sooner the impression is driven the heads of the consuming public, the sooner a very l larger demand will be created for a product in which of us are so heartily interested. As a substantiatio what we have written above, we append an account case before the Drumcollogher Petty Sessions:—

At the Drumcollogher (Co. Limerick) Petty Sessions, on Ju David Kelly, grocer, Drumcollogher, was summoned for selling of coffee containing chicory.—The defendant proved that the was sold by him in the same condition that he had received it the wholesale merchant.—The magistrates said they believed there was no intention on the part of Mr. Kelly to defraud, and were of opinion that the article sold was the same as was receiv him for coffee. They, however, were bound to convict, and h fined 6*d.* and costs.——Miss Margaret Abern was prosecuted alleged similar offence. The canister from which the sample supplied to the sergeant was produced, and the label on it state the contents were a mixture of chicory and coffee.—A nominal pe was imposed.

The Rivalry of China. If China awakens! When C awakens! Ceylon and Indian planters must not be over-sanguine because they have s gained ground at a tremendous rate in the race ag China. If the hare should awaken, what odds agains tortoise? And the chance of the hare awakening be

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COFFEE SHADE TREE.

Sun-dried Erythrina Lithosperma loppings, &c., contain ton:—

61·50	lbs.	Nitrogen.
57·38	„	Potash.
14·92	„	Lime.
13·68	„	Phosphoric Acid.

Seed cured under Messrs. Sutton and Sons' advice.

Orders should be booked early for the 1898-1899 crop of seed the parent trees of above analysis at Rs.6 per pound conta about 2,000 seeds. *Germination guaranteed.*

Only thornless variety extant, and is not procurable anywhere from the

MANAGER, ARIENKOW ESTATE,

Shencott

look less remote than it did some little time ago. A ome paper remarks "that an incident in the past tea season s the use at Wenchow of a machine-roller which proved yond doubt that the most ordinary China tea is capable astonishing improvements if treated by modern methods. enchow tea made by the old native process is of the most ferior description, but, by being carefully made and achine rolled, a very fair drinkable tea resulted. A mpany under the auspices of the Commissioner of Customs Hankow, Mr. R. B. Moorhead, has been formed to periment in this line in the Hupeh tea districts, the safety men and machines being guaranteed by Imperial edict. somewhat similar company is already working in Foochow d has had some measure of success. It is now enlarging operations. The Chinese Government, Mr. Mansfield ys, appears at last to be awakening to the fact that the a trade is rapidly slipping away from their country, and ere are signs that it will be willing to make some conces- ons to encourage measures for the improvement of the tea oduced. A very efficient and feasible way, he suggests, ould be to grant facilities to foreigners to take up land the tea districts, so as to introduce more careful cultiva- on of the plant, and to offer a premium in the shape of a rge reduction in duty on tea prepared by modern ethods. 'The wisdom of such a course would appear vious, for if the measures for tea improvement were owned with success, the revenue would soon recoup itself r the reduced duty by increased export, while in the event failure, the revenue would simply revert to its present oting.'" And Ceylon? And India?

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dian Sugar. In the House of Commons on the 23rd ultimo, Lord George Hamilton oke on the Indian sugar trade, and as this industry and possibilities excites considerable attention, and may entually attract capitalists to this country, we append e speech of the Secretary of State for India:—

"The estimated amount of cane sugar produced in India during ordinary season has been variously estimated at from three d-a-half to five million tons. The number of large sugar factories shown in the latest Indian returns as thirteen; the return of pital for these factories is incomplete; for those factories which ade returns the capital employed ranged from one and-a-half lakh 16 lakhs a-piece. Most of the sugar produced in India is made at nall village works where bullock-power is employed. I have no formation regarding any sugar factories worked by water-power, paying rent to Government for such power. The quantity of ounty-fed sugar imported into India during the year ending arch, 1898, was 107,452 tons, or about two and-a-half times the tal of the previous year. I have no information to show how much this sugar came in bounty-fed vessels." At the present time it oes not really pay to manufacture refined sugar in India, because the large imports of bounty-fed sugars into the country. The roprietor of one of the largest sugar works in India writes to us as llows:—"You could not have failed to have observed during the st three or more years that the price of the raw produce (*goor*) has latively been very dear, while the manufactured sugar has been ry cheap. At the moment here the *goor* of the district, with its per cent. of treacle, is selling to-day for *one anna a pound*, while y best white sugar, polarizing 99·5 per cent., is to-day worth only *e anna and nine pice per pound!* At the same time I may tell you at the 'diffusion' process of sugar leaves all competitors behind." ur correspondent adds that, owing to the fact that it does not pay manufacture refined sugar in India, he was about to close his orks and go home! Another correspondent writes to us as follows this subject:—"*Re* your article on the Indian Sugar Industry, No. 29, India can never drive other competitors out of the ld while she is handicapped by the bounties with which Continental States subsidize their exports. I have studied the subject very closely for the last twenty years, and have written a good deal about it. And in my opinion the Indian Sugar industry is far more likely to collapse altogether than to be further developed, unless bounties are abolished, or an increased import duty is imposed by the Government of India on foreign sugar."

Tea and Coffee Markets. *Tea.*—We learn from the *Produce Markets Review*, dated London, July 23rd, that, owing to the unattractive quality of the bulk of the tea brought forward, the demand shows no improvement, but prices generally are steady. At this early period of the season the proportion of really good teas is generally exceptionally small, and the reports from most of the districts, so far, are not favourable to an early improvement in this respect. Teas from the Assam and Dooars districts are described in the Calcutta advices as thin in cup, although of fair quality, and this is fully confirmed here, as most of the supplies so far received are deficient in strength. From Darjeeling the reports are more favourable, but from Cachar and Sylhet they are not satisfactory, either as regards quality or quantity. That there will be an increasing trade, when the arrivals are up to the average of former seasons, there can be no doubt, particularly for teas worth 9*d.* and upwards, as the market is practically bare of both old and new season's teas at these prices. For next Monday's sale a large quantity is catalogued, and if a good selection of the better teas is offered, a brisk demand at firm rates may be expected. At the public sales 7,069 packages were brought forward, but the bidding was anything but active, buyers preferring to wait until the supply is larger and of more attractive character.

Coffee.—The auctions have again been very poorly supplied, and with a slow demand only a portion has been sold. The few lots of fine quality have alone met with any competition, and the prices for these are well maintained, recent arrivals showing a more marked falling off in quality than is usually the case at this time of the year. The supply of common Costa Rica is still in excess of the demand, and rather lower prices have had to be taken to effect sales, but the market can hardly be called lower. For East India there has been some enquiry, and a few parcels of bold have fetched rates fully equal to those ruling at the commencement of the season. A shipment of washed Santos of the new crop was offered yesterday; the quality was good, but buyers were not willing to pay the prices asked. In the terminal market very little has been done, and quotations have slightly eased off.

LONDON COFFEE RETURNS.

—	HOME CONSUMPTION.		EXPORT.		STOCK.	
	1898	1897	1898	1897	1898	1897
For the week ended July 16, 1898.	Tons. 226	Tons. 267	Tons. 655	Tons. 471	Tons. 19,545	Tons. 14,033
For the 28 weeks ended July 16, 1898.	8,356	8,125	14,864	11,685	—	—

Horse-breeding. As some of our subscribers are interested in this enterprise, we

recommend them to the *Journal of the Royal Agricultural Society of England*, where a most interesting article on the "Mare and the Foal" will be found in their issue, No. 34, of 30th June. It has surprised us why those who have invested capital in horse-breeding always take the lower slopes for their operations. We admit that the climate of the Nilgiris is irregular, but a magnificent crop of lucerne and rye could be grown if sufficient attention was given to it, and the "stock" would be free from the ravages of wild animals. The great drawbacks to the successful issue of such venturs, in the past, has been the destruction of valuable brood mares, when they are *forward* towards foaling, and by the acquisition of good land in the higher slopes, this difficulty would be, to a great extent, avoided. We might take, for instance, "an estate" within Ooty itself, with some 250 odd acres of land, where some 125 head of cattle of any kind could easily be pastured. As we do not anticipate anyone going in for horse-breeding alone, we would suggest appending a dairy farm and poultry yard. The latter requires only a moderate capital, and will be sufficiently remunerative to provide a fair provision for maintenance of home and establishment. We are not now writing locally, but refer not only to the many hill stations, but, say, Waltair on the east, and Mangalore on the west, and plantations generally where, with care and upervision, a home farm thrives, and is a sure and certain source of income. But the possibilities are many. Why, with the advantages granted to us in the many ranges of hills in the Madras Presidency, should we not at any rate make an effort to supply the Government requirements for artillery and remounts. Is it not rather a standing disgrace to our internal progress that we have to indent on Australia and England for all our military requirements? We are perfectly certain that, with even small encouragement in the way of Government providing two or more stallions—not rubbish, but those whose produce would be accepted at a marketable value—there are several men who would willingly put a few thousands of rupees into such a venture, and look forward to a fair to large dividend after the first few years, which would be devoted to the establishment of a farm on a thorough basis. For ventilating new ideas, the "sleeperites" of the Madras Presidency generally scoff, but we wish to impress on those who, with success or otherwise, have invested on the several ranges of the Madras Presidency that they have let a very certain source of income evade them. We do not quite believe that even the U.P.A.S.I. can have the power to convert the Government on its currency theory and practice, but an Association, with such representatives as Mr. Geo. Romilly and Mr. Acworth, might induce Government to start on this very lucrative business, by providing planters with a few well-reputed stallions. Even if their services were given at a moderate fee, the planters would do the rest.

Low Country Coffee Cultivation.

Apropos of a recent visit of sundry planters and others to Mr. Justice Minakshaiyya's irrigated coffee-plantation near Bangalore, the local "intelligencer" of the *Madras Times* writes :—

"The plantation contains ten thousand plants, which will be three years' old next month, and which is expected at the coming crop to yield between three tons to three and-a-half. Twenty thousand other plants will be two years' old next month, and are estimated to yield about a ton as a maiden crop. Yet another twenty thou plants are just about ten months' old. The first two shou believe, yield not less than ten tons next year, and the third a one ton. And all fifty thousand plants two years hence sh yield at least fifteen tons a year, not to speak of what next y planting may yield still later on. The estate covers forty-five a at present, and there is an area of about thirty-five more acr land suitable for extended planting, making a total of eighty a And these eighty acres ought to yield, in full bearing, that is, they are three years' old, twenty-five tons at least. Two very reservoirs, at the head of the plantation, fed by a natural sp irrigate by gravity about thirty-five acres, and another in the m of a sloping valley irrigates another twenty acres. Besides there are two stone-built wells, which irrigate about ten acres. two natural perennial water-courses, in irrigating about fifty a save about Rs.5,000 a year, which should otherwise be spent irrigation at Rs.100 an acre. The present establishment is m tained at a cost of Rs.3,200 a year, and this establishment, calculated, will suffice for another thirty-five acres, and with the of extra manure for future planting, the total expenditure coul put down at Rs.4,000, when all the eighty acres are planted, th Rs.50 an acre, with a yield of from six to seven cwts."

The "intelligencer" continues:—"These facts," (the by the way, a considerable blending of speculation with facts!) "should be of interest to all those who believ the cultivation of coffee in the low-country and its m advantages compared with *Mulnad* cultivation. I h had an interview with Mr. Murray-Aynsley on the sub of the outing, and what he, as an acknowledged expert coffee cultivation in Southern India, thinks of the H hully estate. He tells me that this was his second visi the plantation, and that he found it looking very m better than before. All the plants were coming on a g deal, but he thinks they might be still further improved the introduction of shade trees. Mr. Murray-Aynsle entitled to speak with special authority on this point, f the fact that he has a low-country estate doing very out at Devanhully, where he gives the plants as de shade as can be got for them. For want of this aid mature growth he noticed that the Herehully plants w looking rather forced. Mr. Murray-Aynsley cultivates much as seventy acres of coffee at Devanhully, and obtai a very fair crop last year, in spite of short rainfall and very dry years preceding it. He attributes this succes the good influence of unrestricted shade, and considers t when this advantage is sufficiently recognised and is val with the cheapness of manure, the accessibility of lab and the absence of malaria, coffee cultivation in the l lands of India should become very general, though, would admit, the marketable value of the bean so produ would never come up to the hill-grown article." W the exception of this last bit, the report in very optimis but there are other irrigated coffee-plantations besi Mr. Minakshaiyya's. We should be very glad to hea any one of them has proved successful, from a finan point of view. We believe that few, if any, experien planters share the opinions attributed in the above Mr. Murray-Aynsley.

LETTERS TO THE EDITOR.

TO FORK STEEP LAND.

SIR,—There is no patent about my method for forking st land,—only a little "common sense," and *some* supervision. first thing to do is to cut a road along the top of your field w

sloped in (not a drain, hateful word!!) about three feet wide. When starting to fork leave about two feet from the bottom till unforked, and then start, and turn over an *honest* sod of earth, driving the fork well in, and work up the line, letting each sod overlap the other. If this is carefully carried out, I will defy wash on the steepest land.

"KOLA."

HYBRID COFFEE.

SIR,—As the production of hybrid coffee is a matter of undoubted interest to all Coffee Planters, will you kindly allow me space, with reference to my advertisement in *Planting Opinion*, to explain that the small estate was opened with the view to obtaining hybrids, and that last year I found, on several of my Liberian trees, a considerable percentage of *comparatively* small ripe cherry, which led me to believe that my experiments had succeeded. The seed was planted in a nursery and germinated freely, but unfortunately, during my absence, the nursery was entirely destroyed by fire and not a plant saved. As both species, however, flowered at the same time last March, I have, and not unreasonably I think, every hope of success in the near future.

"HYBRID COFFEE."

CO-OPERATIVE SALTPETRE REFINERY.

SIR,—With greatest interest I have read "Toda's" contribution on the subject. Yes, he says that he has got some little knowledge, but I say that he has got a proper knowledge, while he was in the Salt and Abkari Department he has learnt much of it, and when he is sure of helping his brother planters by supplying the stuff at a cheap rate I would advise "Toda" not to depend upon the subscription, and as he has got plenty of buildings on his estate, he can store up and sell at five per cent. profit, but if he has no funds to provide for its expenditure, he being a "Toda," he must have plenty of buffaloes, of which I would advise him to sell and make use of it; as he gets the principal and profit he can buy some more buffaloes than he sold, and he could easily travel on his buffalo, but not rely upon others' money. Will "Toda" be good enough to give the address of the Refiner who told him that he would supply at Rs.290 per ton on rail at Coimbatore? Will "Toda" be good enough to let us know if he has tried the stuff for his cultivation, and what result he had of it? Or if he knows any one who tried and got a good result? Time for me to graze my cattle and I conclude for the present.

GOWDA.

[Though the above is evidently written with some idea of "Toda's" personality, with which we in no way agree, it does, however, emphasize the opinion we hold, that to make a venture which has great possibilities for planters a thorough success, the identity of the promoter should be revealed, and the scheme started with a pucka debenture subscription.—ED.]

A CO-OPERATIVE SALTPETRE REFINERY.

SIR,—I have read your remarks in your issue of 30th July which precede my letter on the above subject; and you do me less than justice when you say, "We fear 'Toda' will never forgive us for writing like this." It is patent that, as you say, "your remarks are based on nothing save a sincere desire to ensure the success of a scheme which may mean such a lot to the planting community," and I am not so silly as to object to criticism which rests on that basis. Whether the refinery I have suggested is or is not a "commercial venture" is a matter of opinion which any planter interested in the subject can decide for himself. From a careful perusal of your remarks, I take it that the only *vital* point on which we are at variance is "cost of manufactured article." Regarding this you write, "As to this we are vouchsafed no information, and, indeed, are told 'this calculation does not enter into the question now.' In all new undertakings a certain amount of confidence is necessary, but surely this is carrying it to excess, &c. &c." When you say, "We are vouchsafed no information," you overlook the fact that, in my first letter, I put the "cost of manufactured article" at Rs.50 per ton. I have been at some pains to obtain reliable details, and from my present data the cost works out to Rs.1-12-0 per Bengal maund of $82\frac{2}{7}$lb., or, say, Rs.47 per ton. This may be a little out one way or the other; to be on the safe side, I put the figure at Rs.50. But I cannot speak with *absolute* accuracy, or give the odd annas and pies until our refinery has actually outturned a ton of refined saltpetre. And in quoting my words, "this calculation does not enter into the question now," you have quite mistaken the sense in which those words were used. The position I take up is a very simple one, and is just this. To make a ton of refined saltpetre it actually costs the refiner or B licensee X rupees. For this ton the planter has always to pay X+Y rupees, and often X+Y+Z rupees, Y and Z being the profits of the refiner and Estate Agent respectively. A refinery on the lines I have indicated could outturn a ton at X rupees, and every subscriber could purchase a ton for X rupees, saving Y and Z. It was in this sense,—that our refinery could make refined saltpetre at the same cost price as the present B licensee, *whatever that price may be*—that I said, "the cost need not enter into the calculation now." But to pursue this subject further would be to split straws; as, from the concluding para. of your remarks, I see that the experiment of a private refinery has already been tried, with the result that, to quote your own words, "the initial outlay was only Rs.500, and he managed to secure an excellent article at a cost of only fifty rupees a ton," that is at precisely the price I named when suggesting my scheme of a Co-operative Refinery, this definitely settles the "cost of manufactured article." Our initial outlay would necessarily be higher, as—with the demands of 25 subscribers to meet—our refinery would have to make a larger outturn than that of the refinery put up by the gentleman you allude to, who presumably tried the experiment merely with the object of satisfying his own requirements. Advances to Upiliyas would have to be larger in our case. I have already estimated the total sum required to start the Refinery at Rs.1,250, that is Rs 250 for plant, &c., and Rs.1,000 for advances. This latter sum would, of course, be recoverable, so the actual outlay would be only Rs.250. My proposal, therefore, can hardly be called a 'Hooley flotation'!

One word, in conclusion I have already said, and I would repeat, that I do not look for the smallest personal remuneration in any way whatever. Having applied saltpetre on a small scale with results I can only characterise as marvellous, I am fully alive to the benefit to be derived from a more extensive use of this valuable fertilizer; but, on the other hand, I object to pay the exorbitant price now demanded. Only the other day I was speaking to a neighbouring planter (who has joined the scheme) on this subject, and he told me he had recently purchased saltpetre from a firm dealing in manures at Rs.200 per ton, and that on examining it he found it contained a large proportion of sand! Contrast this with the good saltpetre our refinery would outturn at Rs.50 per ton. In order to reach the end I have in view—the production of a really good article at a reasonable price—it is necessary not only that some one should take the initiative, but that he should be prepared to take considerable personal trouble in arranging the various details and starting the refinery. As I happen to have studied the subject of saltpetre manufacture, that personal trouble I offer to take, in order that I, in common with the other subscribers, may be able to obtain really good saltpetre at Rs.50 a ton. Now that it has been shown that saltpetre of this description can be made at this low price, I do trust the necessary number of planters will signify to me their

willingness to subscribe. For if the Refinery is to be established at all, a start must be made very soon, as little, if anything, can be done over the N.E. Monsoon sets in.

I thank you for your offer to put me in communication with the gentleman who has already successfully tried the private manufacture of saltpetre, and that offer I gladly accept, as he will be in a position to afford me valuable data.

TODA.

GENERAL ARTICLES.

A BREAK.

FOR the last few days the flood gates of heaven had been opened ;—rain,—rain,—nothing but rain, from sunrise to sunset, and from sunset to sunrise—a dreary, weary, howling downpour. At length, however, symptoms of a break began to make themselves manifest ; gleams of intermittent sunshine alternated with passing heavy showers, and towards evening the wind ceased its wail and almost died away. This morning we awoke with a sense of an item wanting—a factor in the complex machinery of life-missing, and as the chain of one's thoughts began to revolve in more systematic unison, one remembered—yes, where was the ceaseless drip—drip—which had for the last few days harbingered "more rain." It was early dawn as I awoke, and the birds outside had only just commenced to herald in the advent of another day. As Noah many a lang time syne looked out from the shelter of his ark and saw "that the waters had abated," even so, I, looking out, from my window on the 30th day of the VII. month of this year of grace 1898, saw that everywhere "the waters had abated." Let me tell you, gentle reader (or otherwise), what I furthermore saw. In front of me lay a low undulating series of hills and hillocks, clothed with verdure and bounded at their furtherest extremity by the massive Nilgiri range, ten miles distant, for value and hollow nestled snug and peaceably, vast billows of fleecy cloud, far in the distance, rose the greater hills, their summits standing out abrupt and clearly defined. Slowly light began to dispel this twilight dawn ; slowly, nevertheless surely, until an opalascent haze testified to the near arrival of Phœbus, surely there he was rising, an arc of gleaming gold. He rose higher and still higher until he stood forth pinnacled upon a hill top changed now into a sphere of luminous silver. Cloud and mist, billow upon billow began to disperse, not hurriedly but with languid ease like leviathans disturbed and loth to move. Gradually this curtain lifted laying bare to one's enraptured gaze "Nature." Everywhere had she donned a mantle of brighter hue ; open sward, appeared a vivid green where forest and spinney existed here the green still was best toned down in depths of woodland to an almost purple, and yet not everywhere, for jutting from the distant hill sides could be seen great groups of rock wet with the dew of morn and glistening veritable "tears of gladness in the eyes of sorrow." Yet a little while, and the land lay basking in the sunshine of a beauitful cloudless day.

A gentle breeze fanned one's brow
A wind that had
"No more strength than this,
That leisurely it blew
To make one leap, the next to kiss,
That closely by it grew,"

and moreover, amidst all this joy, amidst all this beauty breathed an air of calm of peace, the peace of God which passeth all understanding.

GOOD NEWS FOR TEA PLANTERS.

OUR tea-planting friends will be glad to read the following intelligence from a reliable source as to the prospects of an increased demand for our teas in Russia, Turkey, Asia Minor. A London correspondent writes :—

"You will, I am sure, be glad to know that friends of the known Rood Lane Firm in the North, who last year found the c for Rogivue, have this week finally concluded an agreement w gentleman introduced by the same Firm, and who has been e lished in the Tea Trade in Constantinople for many years, to getically push British-grown teas in Turkey, Asia Minor and P so you see the Rood Lane Firm have again been instrument finding people with ample capital and business ability to take u development of the trade in British-grown tea in the countries mentioned. I believe it will not be long before we shall see a many million pounds of Ceylon and Indian tea diverted to direction, viz., Russia, Turkey, etc."

From another quarter we have late news of tea f London in the following forms :—

"Consumers are asking more and more for quality and flavo the tea rather than more strength of liquor, and consequently t is a wider difference in value between good liquoring parcels an ordinary run of Pekoes and Broken Pekoes. The few invoic new season's fine Indian teas have sold at high prices, while good to fine Hankow teas, which sold at a good profit to impor have been resold at a profit up to 2*d.* per lb."

Very appropriately, to present another side of a mu discussed question, here comes to us the opinion of a co spondent who ought to know a good deal about Ceylon estates and the teas they turn out. He evidently thi that the factories turning out good teas as ever are exception ; for he writes :—

"I will say that the salvation of Ceylon lies in making better such as we used to make five years ago when men managed t own factories and did not leave it to a teamaker. It can be d but men are too lazy, or else have not been taught how. Tea-mak is an art, not a system ; what suits one day may not do for the n and what are wanted are more brains and perseverance in the Fact The field work is excellent."

Gentlemen with first-class factories—plenty of space and po and superior tea-makers—are not required to notice this opin —*Ceylon Observer.*

AN AGRICULTURAL CHEMIST FOR SOUTHERN INDIA.

(*Communicated.*)

THE *Planter* publishes, as "communicated," a remarka effusion on the above subject. We sincerely trust that f of our readers share the whole of the opinions expressed the writer, who says *inter alia* :—

The South Indian planter has the fatal habit of procrastinat which, our copy book tells us, is the thief of time, and which he fi robs him of his opportunity as well. It did so in the case Dr. Leather, the Government of India chemist, who was enga and was at work for five years in the country, before the plante the south discovered that he would be of any use to him and enterprise, and was considering the way in which his services wo turn to account. Before he made up his mind, Dr. Leather finis his term of service with Government and vanished. This plant community is hardly pet alive to the value of science to its indus Twelve months ago the U.P.A. at Bangalore promised to give subject of entertaining the services of an agricultural chemist special consideration, but a year has elapsed, and it does not app that the subject has advanced beyond the stage of consideration. it has done so nobody is aware of the fact. We shall probably kn when the proceedings of the forthcoming conference at Bangal

MILLIE & REDMOND, late P. THOMPSON & CO., *Ootacamund, Engineers and Contractors.*

are published. Meantime the services of two oxperts have been offered to South Indian planters which they seem disposed to let slide as they did those of Dr. Leather for what must be considered very inadequate reasons. One is the offer of the Mysore Government which thinks it cannot find sufficient work for an expensive all-time expert in that province, and, asks planters in Southern India to say what employment they can find him and what they can contribute towards his emoluments. When South Indian planters originally proposed to get out a chemist for themselves, they calculated on the support Mysore coffee planters would give the scheme. The Mysore Durbar's proposal cuts away this support, and without it they feel themselves stranded, but the circumstances would seem to justify their throwing in their lot with Mysore in this matter and giving the supplemental pecuniary aid which it deserves to give effect to its project. But not so. In a spirit that seems hardly commendable, they have resolved,—or at least one of the largest Planters' Association has done so,—to withdraw altogether from the Mysore project, and this courso, at least for the present, will leave them without such a useful adjunct to their industry as a chemist. ..... South Indian planters don't want to pay for the whole cake, but all the same want to eat it, and are not satisfied with only the part they can afford to pay for. This is a spirit similar to that which led to the rejection of the offer of the Mysore Government and has little to be commended.

SOME INTERESTING FACTS ABOUT RUBBER.

We have to thank *Indian Gardening* for the following interesting extract :—

We are all interested in information concerning this article, and the particulars embodied recently by Dr. Morris in the first of his series of two Cantor lectures on "The Sources of Commercial India-Rubber" may be of service to our readers. Since the days when Le Condamine first described the rubber tree of Brazil, and Don Jose, King of Portugal, in 1755, sent several pairs of his royal boots to Para in order that they might be covered with the waterproof "gum-elastic," the use of the India-rubber has enormously increased. Besides the demand in almost every department of arts and manufacture, the rapid development of cycling, and of the use of rubber tyres for carriage wheels, has added largely to the increased consumption of this interesting article. The quantity of raw caoutchouc imported into the United Kingdom in 1830 was only 23 tons. Even in the year of the accession of our Queen it was only about 200 tons. Last year it had increased to 20,000 tons—exactly a hundredfold. The present value of the imports is about £5,000,000 sterling. The total trade is probably not less than £10,000,000 sterling. More than one-third of the imports is now received from British possessions. In 1888 only about one-fifth was so received. It is estimated that the world's consumption of rubber is 60,000 tons, of the value of £14,000,000 sterling. This stupendous quantity of raw material is laboriously extracted from the milky juice of trees and shrubs belonging to three natural orders, viz., the spurges (*Euphorbiaceæ*), the nettles (*Urticaceæ*), and the dogbanes (*Apocynaceæ*). These plants are distributed over nearly every part of the tropical zone—none are found in the temperate zones, the most important being found in the vast basin of the Amazon, an area almost as large as the Continent of Europe; others are found on the east and west coast of Africa, in Assam, and the Malay Archipelago. Hitherto, the preparation of India-rubber has depended upon the crude hereditary art of a semi-savage people, the rubber-hunters who explore the depths of tropical forests and obtain the rubber milk at the sacrifice of millions of trees, which, owing to the recklessness with which they have been treated, are yearly decreasing. The result is that many localities where rubber was once abundantly obtained have almost ceased to produce it. New sources of supply have, it is true, been found in West Africa, especially in Lagos, the Congo State, and Portuguese South-West Africa. But here also the work of destruction is rapidly going on. The collectors have to go farther and farther into the interior, and the cost of transit is thereby greatly increased. An account was given by the lecturer of an important discovery whereby rubber could be extracted from the milk in a perfectly pure state. This is a mechanical contrivance on the principle of a cream separator. This was likely to prove of great value in the preparation of Central American and some West African rubbers, where the milk flows in an appreciable quantity, and it is capable of being brought in by the collectors. It would be indispensable on regular plantations of rubber trees. By such means the process of preparing the rubber could be kept under scientific control, and all injurious substances, such as proteids, and all dirt and chips, excluded. The value of rubber so prepared has been shown to be increased fully 25 per cent. The exports from Para, 1897, including rubber received from Bolivia, Peru, and Venezuela, amounted to 22,650 tons. Of this amount 51 per cent. was shipped to the United States, and 38 per cent. to the United Kingdom, leaving only 11 per cent., or 2,500 tons, for all other countries. The price of Para rubber, which regulated the price of all the other sorts, has been steadily increasing since 1894, when it was 2*s.* 11*d.* per pound; in 1895 it rose to 3*s.* 2*d.*; in 1896 to 3*s.* 4*d.*; in 1897 to 3*s.* 6½*d.*, while the average price for the first three months of 1898 was 3*s.* 9½*d.* At the last sales, on the 15th July, it was 3*s.* 11*d.* per pound.

THE INDIAN COFFEE & PEPPER EXPORTS, 1897-98.

Mr. Ralph Tatham, Messrs. Arbuthnot & Co's Agent at Tellicherry, has issued his customary Annual Statement of Exports of Coffee and Pepper. This gives statistics for the year ending 30th June, 1898, and the total figures approximately represent what the crops of these products in India for the year in question amounted to. Mr. Tatham further shows the distribution of shipments to foreign ports, and gives the figures relating to exports for the three previous years for the purpose of comparison. He remarks :—

"*Coffee.*—I pointed out last year that the crop of 1896-97 was remarkable as being the smallest exported from India for many years. I regret now to have to add that it is no longer a record year, the crop for the past year showing a further falling off of some cwts. 8,585. I am glad to say that estimates for the coming year would appear to point to the fact that we may expect a considerable improvement when dealing with the figures of the coming crop. Of the quantity shipped this past year, cwts. 121,517 may be regarded as plantation and the balance cwts. 81,658 as native coffee, showing an actual increase in plantation coffee as compared to the previous year of cwts. 4,335 and a falling off in native coffee of cwts. 12,920. The value of plantation coffee this past year was Rs.64,40,401 and of native coffee Rs.35,92,952, calculated at Rs.53 and Rs.44 per cwt., respectively, which I consider an average value for the year, allowing for the difference in prices obtained for the produce of the several districts in which the crops were grown. The total value of past year's crop may, therefore, be taken at Rs.1,00,33,353 as against that of the previous year, which I estimated at Rs.1,35,48,478, but, as already shown, last year's crop compared unfavourably in quantity with that of the previous year, and in addition the coffee market was weaker to the extent of an average of some Rs.15 per cwt.

"*Pepper.*—The total exports of this spice amounted to cwts. 125,231, or some 44 per cent. less than what was shipped last year, the value of which, at an average of Rs.24 per cwt., amounts to Rs.30,05,544. The price of pepper averaged Rs.6-8 per cwt. over that of the previous year, and the bulk of the business was done with Calcutta. I do not think that last year's actual crop was shorter

The Wynaad and the Planting Industry of Southern India, by Francis Ford. Re.1.

The Planting Directory of South India. Re.1-8.

Tea Planting from Seed to Cup in Tamil, with English Translation. Rs.2.

Sketch History of the Planting History of Wynaad, by the late Adolphus Arthur Wright. Re.1-8.

Report of Observations of Injurious Insects and Common Crop Pests during the year 1883, with Methods of Prevention and Remedy by Miss Eleanor A. Ormerod, F.R.Met.Soc., &c. Re.1-8.

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than the previous one, but there was not the usual quantity of the old crop in stock at the commencement of the year, owing to very large shipments to Europe that were made in the previous year."

From the figures given, we take the following details, retabulating them to suit our columns :—

EXPORTS TO VARIOUS PORTS, IN CWTS.

	Coffee.	Pepper.
London	107,109	5,263
Liverpool	13	...
Marseilles	13,589	200
Havre	55,875	1,251
Bordeaux	198	...
Amsterdam	...	250
Trieste	5,294	1,300
Genoa	...	2,050
Leghorn	...	500
Ancona	...	900
New York	...	50
Naples	...	800
Venice	...	101
Hamburg	2,661	3,477
Antwerp...	5,327	100
Adelaide	70	...
Sydney	295	...
Melbourne	1,182	...
Suez	...	664
Turkish, African, Australian and Persian Gulf Ports ...	2,837	1,529
Indian Ports	27,720	111,900
Ceylon	2,453	1,187
	224,623	131,522
Less Imports ...	21,448	6,291
1897-98	203,175	125,231
1896-97	211,760	222,383
1895-96	307,417	157,911
1894-95	291,621	151,439

TOTAL EXPORTS FROM VARIOUS PORTS.

COFFEE.

	Plantation.	Native.	Total.	Pepper.
Mangalore ...	32,926	46,759	79,685	2,807
Tellicherry ...	22,575	33,006	55,584	46,868
Calicut ...	34,076	7,804	41,880	14,699
Beypore ...	24,181	874	25,055	...
Madras ...	...	...	16,696	455
Cannanore ...	...	...	...	27,223
Alleppey ...	...	...	...	23,571
Cochin ...	780	43	823	8,469
Badagara ...	...	...	...	6,355
Tuticorin ...	...	...	4,807	843
Quilon ...	...	...	93	232
			224,623	131,522

THE INDIAN TEA ASSOCIATION.

Extracts from the Report of the Assam Branch.

THE total number of gardens belonging to the Assam Branch Indian Tea Association is 146 against 144 last year, representing an area of 124,963 acres, or approximately 49,985,200lb. of tea against a total estimate for the Assam Valley, for the present year, of 69,851,522lb. of tea.

I would again impress upon all present the advantages of an Association such as ours. Strength is in numbers and unity, and I would ask each one individuaily to use his influence in getting those now standing aloof to join.

There have been various calls on us during the past year for contributions to various funds, and I am pleased to see the sum collected for the famine fund amounted to Rs.3,530-8-0, collected entirely by private contributions.

Extracts from the Proceedings of the Association.

The following resolutions were proposed and carried:—*Proposed* by the Chairman, *seconded* by Mr. D. A. Campbell, that proceedings of the General Committee during the past yea confirmed, the report adopted and the accounts, as audited be p as correct. Proposed by Mr. D. A. Campbell, seconded by M Traill:—That the rate of subscription for the current year each garden belonging to the Association be fixed at one ann acre under tea cultivation. Proposed by Mr. A. F. Bruce: seco by Mr. C. de C. Richards:—That with the view of obtaining gr exactness and reliability in the estimates of the tea crop, the statement of figures shall not be issued until it is also possib give details of the tea manufactured up to 15th August, and th further statement be issued until the actual outturn of the cr published.

Extracts from the Report of the Association.

INDIAN TEA IN AMERICA.

The campaign in America on behalf of British-grown tea has carried on during the year by Mr. Blechynden, the representati the Indian Tea Association, and Mr. Mackenzie, the representati the Ceylon Planters' Association, generally on much the same as before, except that a larger amount of money has been spe advertising, and a smaller amount allotted as subsidies to the who are assisting in pushing the trade. The result of the lev 1897 was, on the whole, satisfactory. The subscriptions collect Calcutta amounted to Rs.1,02,039, in addition to which a su £200 was contributed by a Company in London, which had hitl held aloof. The total amount compares favourably with the r of the levy for 1896, which amounted to Rs.1,03,674. Liberal co butions have again been received from the two Planters' Associa in the Travancore District, for which the General Committee d to record their grateful acknowledgments. The Committe London having decided that the operations in America shou continued for another year, a circular was again issued on the of April in the present year, asking for renewed contributions the Committee have every reason to hope that it will meet wi least as much support as the previous year's levy. At the time the Committee have again to express their regret that a large number of tea concerns still hold aloof from contributing t Fund, while, at the same time, deriving equal benefit with subs ers from the resulting extension of trade. They desire to r what they have before pressed upon the attention of members that it is only reasonable that an enterprise undertaken fo general benefit should be generally supported on the ground common interest and of a common advantage. The American Foreign Tea Committee of the London Association have, as issued an interim report, dealing with Mr. Blechynden's work, was published in February last, and was accompanied by an abs from Mr. Blechynden's report for the year 1897. Mr. Blechy appears to have exercised great care and judgment in distribu his advertisements in view of reaching the largest possible numb the tea-drinking population. He has also personally visited of the large centres where British-grown tea is being sold, satis himself that the spirit as well as the letter of the arrangements by him is being adhered to. The special agreement under whic representatives of India and Ceylon agreed to work conjo instead of in competition has, there is no doubt, been the mea arriving at distinctly more satisfactory results than would othe have been the case. Messrs. Gow, Wilson and Stanton's stat of Indian and Ceylon tea taken by North America during the 1892 to 1897 show a steady annual increase in the trade, the fi for 1897 giving a total of 11,362,000lb., almost equally di betwen India and Ceylon, against 9,624,000lb. for the year In connexion with this important matter, the General Comm have again had under consideration, at the instance of the Lo Committee, the question of approaching Government with a vi raising a fund for the exploitation of new markets by means of to be imposed on exports of tea in India, in much the same way a been done in Ceylon with marked success for some years pas will be remembered that a proposal of this kind was made som years ago to the Committee, but, after consultation with the mittee of the Bengal Chamber of Commerce, it was decided follow it up in view of the improbability of Government assisti the matter. It certainly could not be carried through wi unanimity among the planting interests, and this would be more difficult to obtain in India than it has been in Ceylon. A same time the Committee consider it would be desirable if

plan could be evolved by which the whole of the planting industry could be made to share in a scheme which is for the common good of all, and from which all derive benefit.

THE RED SPIDER, OR SPINNING MITE.

(*Tetranychus telarius, var. humuli.*)

THE following information is issued by the London Board of Agriculture:—The red spider, or spinning mite, sometimes causes serious injury in hop plantations. In 1868, and again in 1893, this insect did much mischief in many hop grounds. The leaves fell off, the burr or blossom could not develop into cones, and in some instances the plants were completely shrivelled up. In most seasons, at least in those in which rainfall and temperature are normal, spinning mites can be found upon the large leaves of the hop plants, especially where the soil is shallow, but in the two years just mentioned they multiplied with wonderful rapidity. They were found upon the small leaves high up the poles, also upon the burr, and even in the cones themselves.

In 1897 there were grave indications in the sultry days at the beginning of August that there would be an equally rapid development of this pest; but a succession of showers and a fall in the temperature opportunely checked its ravages. The lower leaves turned yellow in many grounds, and the yellowness was fast spreading up the poles. Upon the under-surfaces of the leaves thick webs were spread from mid-rib to mid-rib, under which the mites were seen actively sucking up the juices. All sorts and conditions were there, varying in size and differing in colour, but the greater number of them were of a light or greenish-yellow hue. Now and then one was seen of a darker-yellowish colour, approaching brown, but this was exceptional. Many eggs, which are perfectly globular, were suspended as it were in space between the mid-ribs, but upon close inspection with a microscope it was seen that they were kept in this position by means of fine threads stretched from side to side.

Life History.—The spinning mite of the hop-plant passes the winter in the perfect state under stones and clods, in the bark of trees, and in the clefts and under the dried rind of hop poles. It is not noticed, at all events in numbers or as actively injurious, unless there is at least normal summer-heat, and it only multiplies in a dangerous degree when the day and night temperatures are abnormally high. In such circumstances the increase in its numbers and the rapid spread of its destructive influence are remarkable. Eggs are abundantly laid, and, as above described, fixed in position by threads. The comparatively large and round egg is pellucid-white at first and finally becomes slightly dark-coloured. The mites emerge from the eggs in five or six days, and at once begin to suck up the juices of the leaves. At first they are pale greenish-yellow in colour with dark patches on both sides of the body; they become more tinged with yellow later, and some very light-brown specimens have been found, but in no case have they been seen of a distinctly red colour.

In the earlier stages of their existence the mites have only three pairs of legs, but the full-grown insect has four pairs. There are two stiff hairs upon each joint of the legs, and the claws are furnished with long, stiff hairs, upon the ends of which, or upon some of them, are little round balls, or pads, supposed, as Murray says, "to be an essential part of the spinning apparatus." The head is provided with a stout pair of mandibles with hooked ends for biting into the tissues of the leaf, and the mouth has a sucking apparatus which is inserted into the tissues. Very far behind the head are the red eyes. On the under-side of the mite, towards the end of the abdomen, there is a "conical nipple," to use Mr. Murray's words, "from which the threads of the web are drawn out and guided by the motions of the mite and by the action of the minute claws and hairs of the legs."

A badly-infested leaf has its under-side completely covered with a dense web, in which eggs are found in abundance, as well as quantities of mites of all sizes feeding upon the juices of the leaf. The leaf becomes yellow, and, as a rule, finally falls off, when the insects escape into the earth. Mites left on the leaves upon the plant retire into the cracks and under the rind of the poles; they have great power of locomotion, and travel very rapidly quite independently of their webs.

This spinning mite of the hop-plant differs in many important respects from the typical spinning mite cited as *Tetranychus telarius* by Murray and other entomologists, and should be defined as a distinct variety, as *Tetranychus telarius, var. humuli*, or even as a distinct species. It is different in shape and colouring from Claperéde's figures of *Tetranychus telarius*, as adopted by Mr. Murray, and as described by many writers. Though it is admitted that the nature of the food-supplies of these mites may affect their colouring in some degree, it does not seem possible that the differences in the food could be sufficient to change the colour from very light-brown, the darkest shade which has been noted in mites upon hop-plants, to reddish or brick-red, which is the colour of the adult typical *Tetranychus telarius*, according to Murray, Taschenberg, and others. It appears to be just as distinct from *Tetranychus telarius* as *Tetranychus cucumeris*, the mite found upon melons and cucumbers.

It is most difficult, and it may be said almost impossible, to prevent these spinning mites from getting on the bine and leaves. They are most agile in movement, and travel up the bine rapidly. Plants on wire and string seem equally liable to attacks, as the mites crawl up the bines. The application of caustic substances close round the hill is ineffectual, as the mites are so tiny that they would not be affected by such materials as lime, gas-lime, or kainit unless reduced to the very finest powder. It would also be impossible to get at the mites in the cracks of the poles and posts for wire work. When a drought commences in June and there is a probability of its continuance, it would be useful to immediately syringe hop plants upon which the mites are seen with cold water, or with water, soft soap, and sulphide of potassium before the webs are made, or before they are plentiful and thick. This syringing must be heavy and frequent, mere spraying will not suffice, as it is well known that the ordinary spraying with quassia and soft soap has a very slight influence upon them. Hop plants that have been sprayed three or four times for aphis-blight have yet remained badly infested by these mites. To be effectual, syringing must be done early, vigorously, abundantly, and with hand machines. When the webs are well established, even the most drastic syringing is often unsuccessful.

Sulphuring, that is applying "flowers of sulphur" by means of a horse machine, which blows the fine particles on and under every part of the hop plants, is supposed by some to have a prejudicial effect on the mites, but it is believed that this is of little if any benefit. Hop plants are sulphured almost in the ordinary course of cultivation, but the mites are not hindered by this in the least degree. Leaves have been examined upon which the webs of the mites were thickly covered with particles of sulphur, and the mites in the webs immediately in contact with the sulphur were lively and unconcerned. Paraffin emulsion has been of considerable effect when used in the early stages of the attack. This is made by mixing 6lb. of soft soap and 7 gallons of paraffin with 100 gallons of water. The soap is dissolved first in boiling water and poured into a tub containing the paraffin, the whole being churned up with a force pump. The mixture is afterwards diluted to the proper strength. It is important that the water used for this emulsion should be soft; it can be made soft by adding soda or borax.

Sulphide of potassium, known commonly as liver of sulphur, the foundation of several washes for insects, has been used with considerable advantage. It is readily soluble in cold water, but it must not be allowed to stand, as it loses strength rapidly. It may be applied in the proportion of 2½lb. to 100 gallons of water; a little soft soap mixed with it tends to keep it upon the leaves.

Liver of sulphur is also a remedy for some fungoid affections of plants, and would probably be more efficacious than sulphur applied in the form of a powder. It is so soluble that it may be put in with soft soap and quassia and with other insectifuges and insecticides. —*The Planter.*

TEA BLIGHTS.

[BY MR. MASSEE.]

"THE field of nature is one of incessant struggle. Every plant has to hold its own in the face of foes bent continuously and relentlessly on its destruction. If it succeeds it is only because its defensive resources are on the average superior to the attacks made upon it. The final result is one of equilibrium, in which foe and victim each manage to survive. This is arrived at through the interaction of conditions usually difficult to trace, but brought into adjustment after a long period of struggle.

"When a man appears on the scene and for his own purposes destroys the adjustment the struggle begins anew with increased severity. He grows some one plant in wide stretches after clearing the ground of its competitors, but in so doing he relaxes the restraint of all its foes and often gives them a chance they have never possessed before.

"Plants and their parasites have to live in nature as best they may. The host can do without the parasite, but the parasite cannot do without the host. A plant may exist alone in a forest, and the parasite which kills it will find its own fate sealed if it cannot transfer its attacks to a neighbouring individual. The straits to which a parasite in consequence is put to continue its existence, and the varied means by which this is effected, form one of the most fascinating subjects of biological study. But the net result is that under natural conditions the parasite is kept in check.

"When any crop is grown on a large scale it is obvious that the conditions are changed. A parasite having by accident fastened on an individual plant in a plantation and done its fatal work can then extend, usually with little difficulty, to contiguous plants. Under such circumstances the spread of a fungoid disease can only be compared to a conflagration, which, beginning on a small scale, may increase to disastrous dimensions. Such troubles are part of the price which man has to pay for disturbing the order of nature. The only way to treat them is to endeavour either to restore the natural checks which man has abolished, or, as this can from the circumstances of the case rarely be done, to substitute artificial ones in their place. And as a matter of practice, by an attentive study of the habits of the parasite, this can generally be effected and the injury it inflicts circumvented.

"The difficulties which beset tea-culture in Assam are only an illustration of these general principles. But the Government of India does not possess any trained mycologist in its service, and no one was available for the study of the 'blights' which affect Indian tea culture, but Dr. Watt, its reporter on economic products. When a similar investigation was needed for the poppy crop, it was entrusted to a gardening member of the staff of the Royal Botanic Garden, Calcutta. Dr. Watt was obliged to have recourse to Kew for the technical investigation of the most serious maladies with which the tea-planters have to contend. The following report has been drawn up, from material transmitted by Dr. Watt, by Mr. Massee, a Principal Assistant in the Herbarium of the Royal Gardens.

GREY BLIGHT.

"(*Pestalozzia Guepini*, Desmaz.)

"The amount of injury caused to the tea plantations by this fungus is estimated by Dr. Watt as follows:—'I regard the grey blight as very alarming, a disease that if not checked may easily reduce the productiveness of gardens by 50 per cent. It might, in fact, convert Assam from the prosperous province the planters have made it to one of extreme distress.'

"An examination of the fungus sent from Assam on leaves of the tea plant showed it to be identical with the parasite common on leaves of cultivated species of Camellia in Europe. The fungus first appears under the form of small grey spots, more or less circular in shape; these spots gradually increase in size, and not infrequently run into each other, forming large, irregular blotches, which often eventually cover the greater portion of the surface of the leaf. During increase in size, the spots are often bordered by a narrow dark line. The grey or sometimes white colour of the spots is equally evident on both surfaces of the leaf, and is due to the disappearance of the chlorophyll, and the subsequent death of the cells composing the tissue of the leaf. The mycelium of the fungus is very delicate, rarely exceeding 2 u in diameter, hyaline, and sparingly transversely septate; it at first occupies the intercellular spaces and runs between the cells, which eventually become separated from each other by a dense weft of mycelium. Finally the mycelium enters the cells and vessels in considerable quantity, causing the death of the invaded patches, the unattacked portion of the leaf remaining quite unchanged. When the leaf-tissue of the diseased patches is quite dead and brittle, the mycelium of the fungus becomes aggregated in numerous dense tufts just beneath the cuticle, more especially on the upper surface of the leaf. On the tips of these aggregations of slender, erect hyphae, or conidiophores, which spring from a basal pseudoparenchymatous stroma, the conidia are borne. As these clusters of conidia increase in size they raise the cuticle of the leaf into a series of minute warts, until finally the tension is too great, and the cuticle ruptures, us in a triangular slit through which the mature conidia protrud soon become free on the surface of the leaf, from which the removed by wind or rain. Such of those as happen to alight o moist surface of the leaf of a suitable host-plant, germinate at enter the tissues of the leaf, and form a new centre of disease, in course of time produces conidia. By this rapid method of co formation and distribution it can be readily understood how po and certain it is for the disease to spread rapidly when once introd into a tea garden.

"The conidia are produced at the apex of slender hyphae or diophores, and are very beautiful objects when seen under the m scope, being narrowly elliptic with somewhat pointed ends, and us three-septate; the two end cells are colourless, while the two m cells are olive-brown, the terminal colourless cells being surmou by four very slender, colourless, spine-like processes longer the conidium itself. The above-described is the typical and abundant form of condition; variations occur in the number of s which range from two to four; the hair-like appendages also from one to four, or are sometimes entirely absent.

"The life-history of the fungus was ascertained from a seri cultures; living conida being obtained from the fungus growin Camellias cultivated at Kew.

"Conidia germinated freely within eighteen hours in hanging cultures in ordinary tap water. The median dark-coloured cel the conidia are alone capable of germination, each cell as a producing a single germ-tube; in rare instances two germ-t spring from a cell, one of which remains rudimentary. On steri bread a dense white superficial mycelium soon appears, on surface of which very minute dark points, consisting of grou conidia, are visible about the third day. Five days after sowing conidia are mature and capable of germination, but bread does appear to be a very suitable medium for the cultivation of fungus, the characteristic terminal, filiform appendages of the co being almost constantly below the number normally present, a certain tufts entirely absent. The spineless condition of coni agrees exactly with the fungus described by Cooke as Hender theicola, parasitic on living tea leaves from Cachar, which is in re nothing more than an abnormal form of Pestalozzia Guepini, has also been observed on Camellia leaves at Kew. Examples of abnormal spineless conidia, sown on plum-juice gelatine, gave o to perfectly normal conidia within a week, in fact only no conidia were produced on the last-mentioned nutrient solu whether normal or exceptional conidia (in so far as the numb apical spines were concerned) were sown. It is quite an easy m to inoculate living uninjured Camellia leaves by placing conid the damp under-surface of the leaf, and keeping it moist for tw three days. No result was obtained when the conidia were pl on the upper surface of the leaf.

"Pestalozzia Guepini is not known to possess any other for fruit or mode of reproduction than the condition described abov

"The disease under consideration is by no means new; specim of tea leaves attacked by the Pestalozzia, now in the Kew Herba are accompanied by the following note: 'Tea leaves (bligh Cachar. 1872 growth. A. H. Blechynden.' A second lot o leaves, suffering from the same disease, is accompanied by a as follows:—'Leaves from a tea tree recovering from 'red spi Sap just beginning to run through them. This tree, like m thousands, has not given any leaf for three months.—T. B. Cu Received from Mr. Blechynden, Calcutta, by T. B. Curtis. Rece from Mr. Blechynden, Calcutta, by T. B. C., October, 1878.'

"The fungus occurs as a parasite on leaves of plants belon to the following genera:—Camellia, Rhododendron, Citrus, Magn Alphitonia, Niphobolus, and Lagerstræmia.

"Owing to its wide distribution at the present day, the orig home of the fungus is difficult to determine with certainty, but amount of evidence at hand suggests an Eastern origin. In I it occurs on Camellia and Rhododendron; in Europe it is b means uncommon, but always on introduced plants belonging t two above-named genera. In the United States it occurs introduced species of Camellia and Citrus, from which it ma possibly have passed on to the native Magnolia. On the other h it occurs on indigenous plants (Niphobolus) in New Zealand, an Alphitonia in Queensland.

"*Preventive Measures.*—If the diseased leaves were collected with the amount of care and intelligence exercised in collecting sound leaves, and burned at once after being collected, the disease would soon be stamped out, as the mycelium of the fungus is not perennial in the tea plant; consequently infection, and a recurrence of the parasite, depends entirely on inoculation by the numerous conidia or reproductive bodies of the fungus present on diseased leaves. Remembering the very different kinds of plants on which the fungus is known to be parasitic, it is very probable that it also occurs on wild plants growing in the vicinity of the tea gardens; if such proves to be the case, all such plants should be removed if practicable, as the conidia of fungi are carried considerable distances by wind, birds, and insects, and no amount of attention in the way of removing the parasite from the tea plants would avail, if the supply of conidia requisite for inoculating the tea plants were formed on other plants growing in the neighbourhood."—*Kew Bulletin.*

MARKET REPORT.

COFFEE.

Messrs. R. J. Rouse & Co's Weekly Coffee Report (August 5, 1898) says:—As mentioned last week, owing to the Bank holiday the Public Sales were only resumed yesterday, when a moderate supply was brought forward, consisting chiefly of common Costa Rica, New Granada, Salvador and other Central American descriptions, which sold at about previous rates.

No East India was catalogued.

Futures were firm and fully 3*d* dearer, the early part of the week on moderate receipts, but the recovery was nearly all lost yesterday on large receipts at Santos. So far the receipts at the Brazilian Ports since the 1st ultimd (the commencement of the crop year) to the present date, show a deficiency of nearly 300,000 bags compared with last season, and the trade is naturally much interested in the question as to whether the crop is not only a later but a really smaller one than last season.

COFFEE.—London advices dated 5th inst. state:—The public market was closed until yesterday, when public sales were resumed. Supplies were on a very light scale, only one catalogue being issued which consisted entirely of Central American descriptions; there was a good demand, and practically the whole was disposed of at steady to occasionally higher prices. There has been very little business passing in "futures," and prices, after showing a slight advance, close without alteration, the tone being flat owing to heavy receipts at Santos. We quote:—

London	...Santos	...September delivery	...	29s 0d
New York	...No. 7 Rio	... „	...	5·45 cents.
Hamburg	...Santos	... „	...	30 pf.
Havre	...Santos	... „	...	36 francs
Holland	...Good ordinary Java	...	...	38¼ cents.

Imports Deliveries and Stock of COFFEE in London are as follows:—

		STOCK.		IMPORTS.	
		1898.	1897.	1898.	1897.
West India	... tons	544	432	1,560	756
Ceylon	...	88	136	192	322
East India	...	2,340	2,466	5,371	4,914
Mocha	...	506	459	535	472
Brazil	...	3,104	2,142	2,223	1,290
Other Foreign	...	12,834	7,772	24,104	18,733
Total tons	...	19,417	13,407	33,985	26,487

		HOME CONSUMPTION.		EXPORT.	
		1898.	1897.	1898.	1897.
West India	... tons	244	213	1,108	466
Ceylon	...	97	105	117	207
East India	...	1,651	1,431	2,486	1,803
Mocha	...	435	330	92	141
Brazil	...	626	756	1,464	1,628
Other Foreign	...	5,702	5,900	10,237	8,153
Total tons	...	8,755	8,735	15,504	12,398

The preceding figures exhibit—

In the Imports an increase this year of	7,498	tons.
Home Consumption an increase of	20	„
Export an increase of ...	3,106	„
Stock an increase of ...	6,010	„

The results of the auction yesterday are as follows:—

COSTA RICA.—1,470 bags sold, smalls 33s 6d to 42s, ordinary dull mixed pale and brownish 37s 6d to 40s, good ordinary brownish and pale 40s 6d to 45s, fine ordinary pale greenish 48s to 50s, fine fine ordinary to low middling 53s to 57s, peaberry 43s to 51s.

GUATEMALA.—21 bags bought in.

NICARAGUA.—78 bags sold, ordinary dull foxy pale 37s 6d, damaged pale greenish 51s to 52s.

SALVADOR.—421 bags sold, dull foxy pale 42s to 42s 6d, fine ordinary 43s 6d to 45s, peaberry 45s 6d.

COLOMBIAN.—549 bags sold, fine ordinary clean pale 45s 6d, pale gray and low middling 54s 6d to 58s; London-cleaned, dull soft mixed red and black 45s 6d to 50s 6d, dull soft greenish slightly mixed to low middling 53s 6d to 61s, middling coloury 66s to 66s 6d, good bold 81s 6d to 88s 6d.

Receipts in Rio and Santos.

	1898-9.	1897-8.	1896-7.	1895-6.
Aug. 3—	Bags.	Bags.	Bags.	Bags.
Rio	17,000	13,000	10,000	8,000
Santos ...	43,000	42,000	24,000	13,000
Total 5 days				
Rio	44,000	77,000	66,000	40,000
Santos ...	124,000	140,000	97,000	48,000
	168,000	217,000	163,000	88,000
Since July 1				
Rio	283,000	412,000	388,000	216,000
Santos ...	560,000	726,000	572,000	313,000
Total	843,000	1,138,000	960,000	529,000
Crop	—	10,461,000	8,680,000	5,489,000

Exchange $7\frac{5}{16}$d, previous day $7\frac{9}{32}$d.

Havre, August 4.—Market quiet. Santos good average September opened at 36¼f and closed at 36f, December opened at 36¾f and closed at 36½f.

Hamburg, Aug. 4.—Good average Santos September opened at 30¼m and closed at 30¼m.

New York, Aug. 3.—Closing prices of No. 7 Rio were as follow:—

	Aug.	Sept.	Oct.	Nov.	Dec.
Aug. 3 ...	5.45	5.50	5.50	5.55	5.65
Aug. 2 ...	5.45	5.50	5.55	5.60	5.65

Auctions to-day embraced:—7 casks 4 barrels Ceylon Plantation, 47 bags Ceylon Liberian, 81 bags African and Liberian, 6 casks 161 barrels 66 bags Jamaica, 111 bags Nicaragua, 206 bags Guatemala, 1,281 bags Costa Rica, 56 bags Mexican, 666 bags Columbian, 56 bags Salvador, 219 bags New Granada. The sales went off steadily for good qualities which made full rates, but common grades were much neglected and hard to sell.

TO-DAY'S HAVRE & HAMBURG COFFEE TERMINAL QUOTATIONS.

(*Commnnicated by Mr. Edward Nauen.*)

		Havre.			Hamburg.	
	10.15 a.m.	12.15 p.m.	3.30 p.m.	10.30 a.m.	2.30 p.m.
Sept., 1898 ...	36	36¼	36¼	30	30
Dec. ...	36½	36¾	36¾	30½	30½
March, 1899 ...	37	37¼	37¼	31	31
May ...	37¼	37½	37½	31½	31½
	Dull. Value.	Steady. Buyers.	Steady. Buyers.	Steady. Buyers.	Quiet. Buyers.

TEA.

Messrs. Gow, Wilson and Stanton's Indian, Ceylon, and Java Tea Report, dated July 29th, 1898, says:—

QUANTITY BROUGHT TO AUCTION IN LONDON FROM 1ST JUNE TO DATE.

	Indian.	Ceylon.	Java.
1898-1899...	85,136 packages.	210,651 packages.	5,901 packages.
1897-1898...	86,344 „	238,857 „	8,401 „

20,209 *pkgs.* INDIAN
32,894 „ CEYLON
524 „ JAVA
} Total 53,627 packages were offered in public auction this week.

Australasia continues to consume more Indian and Ceylon Tea year by year; the following figures show that China Tea has been displaced there in about the same proportion as in this country. The total consumption of Tea does not appear to increase in that quarter.

Exports of Indian, Ceylon and China Tea direct to Australasia from 1st May to end of April.

	1897-8	1896-7	1895-6	1894-5	1893-4	1892-3
Indian ...	6,600,000	6,197,450	6,559,463	4,414,112	6,514,360	3,845,328
Ceylon ...	13,500,000	11,925,000	10,300,000	7,513,975	7,650,000	5,694,729
China ...	4,593,000	6,200,000	11,262,500	10,463,585	13,000,000	14,650,000
Total lb. ...	24,693,600	24,322,450	28,121,963	22,391,672	27,164,360	24,190,057

Indian. The market is far from settled in the absence of many buyers who will not be returning from their holidays until after next week, when the season should open in earnest. Prices on Monday were very irregular

and in some cases again cheaper. A few fine Invoices attracted attention, and some good averages were obtained, amongst which were the following:—"Castleton," 1/9½; "Sookerating" of the Assam Fron. Co., 1/5¾; "Budla Beta," 1/5½; "Suddia Road," 1/4½; and "Samdang" of Doom Dooma Co., 1/4.

Week's avg. of Tea sold on Garden Account, 1898, 15,114 pkgs. av. 8·45d. 1897, 9,740 pkgs., av. 8½d.

	1898.		1897.		1st June to date 1898.		1st June to date 1897.	
	Pkgs.	Price.	Pkgs.	Price.	Pkgs.	Price.	Pkgs.	Price.
Assam ..	7,186	9·91	2,682	10¾	12,777	9·45	13,389	9·84
Cachar & Sylhet ...	1,734	6·02	3,768	6¼	2,288	5·99	12,193	6·30
Chittagong ...	—	—	—	—	—	—	—	—
Chota Nagpore ...	—	—	—	—	—	—	211	3·75
Darjeeling ...	2,777	8·38	876	9½	9,472	8·38	8,588	9·37
Dooars ...	1,810	6·94	1,921	7½	4,371	7·12	5,648	7·80
Kangra, &c. ...	195	5·50	64	6½	719	6·30	500	6·58
Neilgherry ...	40	6·50	31	4¼	695	6·66	788	6·64
Terai ...	414	6·17	—	—	805	6·13	106	8·75
Travancore ...	958	6·27	393	7	7,345	6·15	6,822	6·35

Total Tea sold on Garden Account 1st June to date 1898, 37,509 pkgs., av. 7·78d. 1897, 38,501 pkgs., av. 8·12d.

Comparative prices of Indian Tea in London.

		1898.	1897.	1896.	1895.
DUST.	(Fair ordinary, dark liquor) ...	3½d	3½d	4½d	4¼d
FANNINGS.	(Red to brown, strong rough liquor) ...	3¾d	4d	5d	4¾d
BROKEN TEA.	(Brownish to blackish, strong liquor) ...	6d	6¼d	7¼d	6¼d
PEK. SOUG.	(Blackish greyish, useful liquor).	6¼d	6¾d	8d	7½d
PEKOE.	(Greyish to blackish, some tip, useful liquor) ...	7¼d	8½d	9d	8¼d
PEK. SOUG.	(Blackish greyish, inferior liquor).	5¼d	5d	5¾d	5½d
PEKOE.	(Blackish greyish, some tip, inferior liquor) ...	5½d	5¾d	6½d	6½d

Ceylon. These kinds met with a ready sale at prices current last week. There were a few less desirable invoices, however which sold at rather lower prices.

TEA STATISTICS.

Imports and Deliveries of Tea in London from 1st June, 1898 to 31st July, 1898, compared with the previous season and Stocks on 31st July, in each year.

IMPORTS.		1898.	1897.
Congou	lb.	5,341,352	6,057,066
Souchong		380,801	377,900
Oolong		40,610	3,820
Flowery Pekoe		12,697	4,590
Scented Orange Pekoe		149,300	124,140
Scented Caper		—	538,629
Green		313,254	29,622
Sorts and Dust		3,440	1,120
Total China ...		6,241,454	7,136,887
Japan		534,730	742
Java			
		6,776,184	7,879
Indian		7,497,901	7,907
Ceylon		19,201,950	21,090
Natal		10,800	—
Grand Total ...		33,486,835	36,877

DELIVERIES.		1898.	189
Congou	lb.	2,796,880	2,962
Souchong		145,400	270
Oolong		174,356	158
Flowery Pekoe		2,415	8
Scented Orange Pekoe		68,560	48
Scented Caper		739,662	743
Green		868,465	1,038
Sorts and Dust		1,680	2
Total China ...		4,797,418	5,233
Japan		21,450	8
Java		520,170	712
		5,339,038	5,954
Indian		20,339,031	18,509
Ceylon		15,579,560	16,831
Natal		5,856	10
Grand Total ...		41,263,485	41,305

STOCKS, July 31st—		1898.	189
Congou	lb.	*7,924,895	9,569
Souchong		*751,910	959
Oolong		*660,241	468
Flowery Peoke		14,867	10
Scented Orange Pekoe		*358,020	314
Scented Caper		*479,766	1,385
Green		*2,963,281	2,078
Sorts and Dust		11,640	7
Total China ...		13,164,620	14,793
Japan		76,830	72
Java		*672,140	782
		13,913,590	15,649
Indian		*25,232,658	21,633
Ceylon		*20,615,684	24,212
Natal		37,344	20
‡ Grand Total ...	lb.	59,799,276	61,516

* The following teas were destroyed at the fire at Hay's Wharf, and h been deducted from Stock: Congou 160,173 lb., Souchong 2,406 Oolong 44 lb., Scented Orange Pekoe 30,320 lb., Scented Caper 79,422 Young Hyson 65 lb., Java 39,200 lb., Indian 81,000 lb., Ceylon 237,346 l

‡ Arrived to July 31st but not yet included in the stock 1,400,000 against 1,000,000 lb. in 1897.

PUBLIC SALES OF SOUTH INDIAN TEA.

(AVERAGE FOR ALL INDIA 8·45*d.*) *July 29th.*

GARDEN.	Total.	Average.	Broken Org. Pek. or Flowery Pekoe.		Pekoe and Unassorted.		Broken Pekoe.		Pekoe Souchong.		Broken and Souchong.		Fannings, Dus and Various	
	Quantity	Price.	Quantity	Price.	Quantity	Price.	Quantity	Price.	Quantity	Price.	Quantity	Price.	Quantity	Pric
Neilgherry ...														
Curzon ...	40½c	6½	...	...	...	...	40½c	6½	...	...	...	...	...	...
Travancore ...	**958 p**	**6·27**												
Balamore ...	28½c	6¼	...	...	...	...	28½c	6¼	...	...	...	...	...	...
Cheroot Mallay ...	160½c	5¾	...	...	160½c	5½5¾	...	...	...	...	...	...	...	...
Kanan Dev Hil C A.	130½c	6¾	20½c	7	20½c	5½	60½c	7¼	...	...	...	...	...	...
Mlapara ...	33	5½	...	...	33	5½	...	...	...	...	...	...	30½c	6
Parvithi ...	107½c	7	39½c	8½	38½c	6½	...	...	30½c	5¾	...	...	...	...
Penshurst ...	141	6¼	61 p	6½8½	30	6	22	7	17	5½	4	5½	7	4
Travancore T Co ...	119	6¾	...	...	38	6¼	45	7¾	9	5½	10	5¼	17	6
Vembenard ...	137	6¼	...	...	32	5¾	63	6¾	14	5½	17	6¼	11	5
Wallardie ...	103	5¾	...	...	24	5¾	31	6½	38	5½	1	5¼	9	4

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PLANTING OPINION.

A WEEKLY JOURNAL

WRITTEN BY PLANTERS FOR PLANTERS.

VOL. III.] COONOOR, SATURDAY, SEPTEMBER 3, 1898. [No. 35.

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SUBSCRIPTION.—Advance Rates: Yearly, Fifteen Rupees; Half-yearly, Eight Rupees; Quarterly, Five Rupees, and Monthly, Two Rupees, including postage. Single Copies, Eight Annas.

ADVERTISEMENTS.—From the 1st October, 1897, the charge for line advertisements will be: 4 as. per line for the first, 3 as. for the second, and 2 as. for the third and succeeding insertions. Five-line advertisements from Subscribers will be inserted for three issues for one rupee; non-Subscribers will be charged two rupees.

DOMESTIC OCCURRENCE.—The fee for inserting a domestic occurrence will be *One Rupee* for each insertion, payable in advance.

N.B.—Remittances should be sent to the Manager, "Planting Opinion," 11/12, Second Line Beach, Madras.

IMPORTANT NOTICE.

The Business Offices of this paper having now been removed to Madras, all remittances should be made payable to the Manager of *Planting Opinion*, 11 and 12, Second Line Beach, Madras, who will also attend to all advertisements, &c.

Letters to the Editor should be addressed to Coonoor, as usual.

SEASON REPORTS.

TO OUR SEASON REPORTERS.

Please post your next reports to reach Madras on Friday, the 9th September, 1898.

Season Reports should be sent to the Printers, Messrs. ADDISON & Co., direct, and not to *Planting Opinion* Office.

Coorg.

POLLI BETTA, *1st Sept.—Weather.*—It has been one long break throughout the past fortnight. It may be judged what rain we have had when the total registered for the month to date is barely 4 inches. *Plant-diseases.*—Leaf-disease has only showed up in small patches, few and far between. The coffee generally throughout the district is looking in splendid condition. *Labour.*—But few fresh arrivals, but they are coming: sufficient for present requirements. *Health.*—Good. Price of grains high. Paddy transplanting continuing.

Kil Kotagiri.

26th August.—Weather.—No rain again this week. Wherever it is possible to turn water into the estates it has been done. All the places are suffering very badly now, and I am afraid the whole crop will go light. A few beans turn red that leave nothing inside them. Estimates are being reduced throughout the district. Young Clearings that have been planted out this year are doing badly on account of the short rain, and it is feared that if rain does not come within a week, most of the plants will be past help. *Health.*—Fair; worse amongst planters than amongst coolies. *Labour.*—There is more labour in the district than we can give work to.

PESTS AND BLIGHTS.

WE hear a great deal more of competition between Tea and Coffee, and of the conflicting interests of coffee-planters and tea-planters, than of the fact that, from the scientific point of view, there are many similar features in the life of the tea-plant and that of the coffee-plant. This fact shows that the growers of these two rival plants should have a good deal to learn from one another. In the matter of pests and blights, for instance, the coffee-planter can learn a good deal from the results of investigations of the diseases of tea-plants; and *vice versâ*. It is questionable,

however, whether any planter takes up a book on a subject other than that of his own particular product in the hope of learning something that may be useful to him in regard to it. We propose to try to show that he might often do this with great advantage. First, we will take the case of a coffee-planter, for old though the industry is, it is yet behind tea in the matter of scientific investigation. Let us glance for a moment at Dr. WATT's recent book on *The Pests and Blights of the Tea Plant.* In the first place, it is on record there that Dr. WATT has been "compelled to realise that remarkably little value can be placed on insecticides." Is there any satisfactory evidence that what applies to Tea in this connection does not hold equally good as regards Coffee? If there is, we should like to have it before us, and to submit it to Dr. WATT for remark. Then there are other words that surely apply to cultivators of coffee as well as growers of tea:—"The process of trying effects is one of blindly groping in the dark so long as we have no grounds for our experiments. And this state of affairs, as it seems to me, has come about more by accident than anything else. The planters have only to be pointedly told that their co-operation is indispensable to any solution of the complex problems of the tea-pests and blights, to ensure a large body of willing and careful observers. The time and money spent in trying experiments with insecticides had far better be directed to an intelligent effort to trace out the habits of pests." Perhaps Dr. WATT is over-sanguine about the large body of observers, but he asks a pertinent question when he says, "Why should we, for example, be unable to say where red-spider hibernates?"

A similar question, *mutatis mutandis,* might be applied to every pest and blight from which the tea and coffee plants suffer. Is it necessary to await the investigations of a scientist before deciding what a particular pest is, or what treatment should be adopted for its extermination? Experience has shown that it is *not.* There are many planters who are quite competent to study effects so closely as to acquire a very fair idea of causes; and if such men will but carry their researches to the farthest possible point, they will find that scientists will be able to help them even from a distance. Dr. WATT points out that pests and blights must not be too readily regarded as *causes* of disease. They are often mere *consequences* of an unhealthy state of the bushes. This is a point that an intelligent and observant planter will frequently determine for himself. Such men have been at work among us for many years past. Some have taken their brother planters into confidence as to the result of their study of blights, etc.? Others have not. If all who investigated matters in a quasi-scientific, or even in only a practical, manner would but make the results known, comparisons between one man's reports and impressions and another's would undoubtedly lead to a sounder knowledge on many points of interest than is now possessed. The broad lines of Dr. WATT's conclusions regarding Tea apply equally to Coffee. For instance, liberal and rational treatment—remarkably few blights. Exhaustion from age is a less serious danger than defective cultivation—so that many of the pests and blights will have to be dealt with "by changes in the systems and principles of the agricultural operations pursued."

Lest the above remarks might be read as meaning that Coffee has much to learn from Tea and can teach it nothing in return, we add a few words on the subject of Hybrids. Here, we think, successful experiments with Coffee demonstrated the soundness of some of Dr. WATT's deduc from the unsatisfactory results of some instances of na hybridisation of Tea. In one place Dr. WATT rema "Hybridism has hitherto been left to Nature; it ha fact, been regarded as an unavoidable evil instead of recognised as one of the possible means of solving question of blights or of effecting improvements in yield and quality of tea." Coffee-planters have at leas the length of realising the useful effects of hybridisa They have done more: they have found that what be termed the foreign sire leads to one set of re while the foreign stock and the "home" sire yield t different results. Dr. WATT sees that there is a proba of something of this kind occurring with tea; but w sure that he would be interested in reading the resul actual experiment and experience on the part of c planters in Southern India. With Tea, he says, the h is more liable to Mosquito; in like manner red-s appears first of all on China and few hybrid teas, rare Assam. Similarly, certain hybrid coffees have been to suffer greatly from leaf-disease, while others have en entire or comparative immunity. Dr. WATT merely re in one place that "it seems possible that the female eleme the inferior hybrids may have been the China stock." in Southern India, experiments with Coffee have affo results that might almost be said to justify the re that Dr. WATT's "guess" regarding Tea is correct. be so, then Tea has, indeed, learned something from C And if our quotations from Dr. WATT serve the purpos which they are intended, they will convince our reader coffee-planters as well as tea-planters may learn a good by a careful study of *The Pests and Blights of the Tea* There are general lines of resemblance between the diff sections of plant life, just as there are many poin difference. The Laplander and the Fiji islander offe widely divergent specimens of the human race; but the organs differ less than the features and physical forms. action of the heart, the lungs, the muscles, is much the in both cases; and though the one man may be most to the diseases from which the other suffers least, the many from which *both* suffer. So it is with Tea and C There are many points of resemblance as well as of d ence; and the study of ascertained facts concerning th should certainly help to improve our knowledge of the

THE CURRENCY QUESTION.

FROM Reuter's telegrams to the Press and a private gram from the *Pioneer's* London correspondent we that a blue-book was issued on the 25th instant conta 319 closely printed pages of the evidence given befo Currency Committee up to the date of adjourn Twenty-four witnesses had been examined, includin James Mackay, Sir Frank Forbes Adam, Messrs. J O'Conor, Stephen Ralli, Robert Steel, Allan Arthur, North Christie (Ceylon), Francis Harrison, James Fair Finlay, Alexander Lindsay, Cave Browne, William (Ceylon) and Charles Cox, Sir Henry Waterfiel Edgar Vincent, Sir Antony Macdonnell, Sir S Montague, Baron Rothschild, Messrs. Leslie Probyn, Acworth, Henry Coke and Ewan Cameron. The evi of the above gentlemen is said to deal minutely with

spect of the Currency question, in relation to the finance, nd the import and export trade of India and Ceylon. mong the proposals for meeting the deficiency estimated o ensue if the mints are re-opened are the raising of the ustoms duties 10 per cent.; the doubling of the salt tax; ncreasing the railway rates; an export duty on jute; an xcise duty on manufactured articles; and doubling of the ncome-tax. But it is admitted that each expedient is kely to yield only a fraction of the amount required. large majority of the witnesses are, however, opposed to he re-opening of the mints. The schemes of the Indian overnment and those of Messrs. Lindsay and Probyn are lly discussed. The Government's scheme is approved ordially only by official witnesses. Many of the witnesses ecommend a gold standard even without gold currency, ut Lord Rothschild considers this unfeasible, and thinks hat the late enormous increase in gold production ought o facilitate India's acquiring the reserve necessary for a old standard.

It is understood that the Committee have been unfavourbly impressed by the evidence and suggestions of the re-open the mint" witnesses. Not only Lord Rothschild, ut also Sir Samuel Montague (lately an ardent Bimetallist) nd Mr. Raphael stated that the gradual accumulation of a old reserve would be necessary for the introduction of a old standard. They agree that this was practicable without affecting the money market to an undesirable extent. Mr. Lindsay, of the Bank of Bengal, and Mr. Leslie Probyn xpounded their respective plans. The evidence of the ormer was very clear. His plan was admitted to be ngenious, but the adoption of any artificial system is conidered unlikely. Sir Antony Macdonnell gave important vidence concerning the incidence of land assessment and nternal trade. He and other official witnesses appear to ave tried to disprove the statement persistently made ere that the reduction in the value of silver ornaments ollowing the closure of the mints had caused discontent in ndia. Sir Antony asserted that there were two ornament uyers to one seller. These witnesses also asserted that the redictions regarding serious illicit coining were groundess. On these two points there must, however, be much nore to be said. "Two buyers to one seller" is a very eal phrase, but what about *prices?* The gist of the whole natter lies in the present *value* of ornaments as compared with the value in, say, 1891. As for the illicit coining, the act that it is increasing appears to be established by the ecords of Indian and Ceylon Police Courts.

According to the *Pioneer,* further evidence will be taken n October. The present tendency of opinion, it is confidently stated, shows that the question of re-opening the nints is considered absolutely extinct. Government must proceed to the effective establishment of a gold standard with a rate of sixteen-pence, accumulating a gold reserve nd ensuring the convertibility immediately success is ssured. To meet the present prolonged monetary tringency, close attention will be given to the maintenance f a sound financial position. The Committee, it is thought, vill probably recommend a plan which, while not identical with any of those suggested, will yet aim at containing the best elements in each.

Elsewhere in this issue we give the statement made to the Committee by Messrs. G. L. Acworth, T. N. Christie and the Hon. Mr. H. P. Hodgson. Only the first two of these gentlemen were examined. We also give an interesting report of an interview with Mr. Lindsay on his return to Calcutta.

CEYLON'S SCIENTIFIC EXPERT.

Mr. Bamber has been engaged for twelve months as Tea Expert by the Planters' Association of Ceylon, who have thus got the better of the Indian Tea Association, which was considering whether it should or should not make Mr. Bamber an offer. It is yet too early to say what this gentleman will do in his new position, but his work should be watched with interest by South Indian planters. They, too, should follow carefully the actions of Ceylon planters in regard to the new appointment, for human nature is much the same in the island as on the continent. In fact, there are already signs of the conflicting interests the effect of which was foreseen in Southern India when the employment of an Agricultural Chemist was seriously discussed. It appears that the Thirty Committee in Ceylon have made a grant of £1,000 to meet the cost of the new appointment. It is thought possible that typical estates might be taken from different parts of the island—estates of different altitude, rainfall, soils, &c., and they should arrange for Mr. Bamber to visit and report on those estates, his report being, of course, public property for the use and advantage of all members of the planting community. From the report of the proceedings of a meeting of the Dikoya Planters' Association held on 25th ultimo, it is abundantly evident that all planting districts are likely to raise the cry: "The money used is partly ours; take care, that at least one of your 'typical estates' is selected in our district." It is not an unreasonable cry, but it shows where there must always be a very weak spot in any such arrangement as that made with Mr. Bamber. Then, too, the question has been raised: "Mr. Bamber is to be paid by the 'Thirty Committee;' can he undertake any private work?" And the question, "Who is to select the typical estates?" is not yet definitely answered. These points have an interest for planters in Southern India, for it may be safely prophesied that similar points will come up for settlement here whenever an Agricultural Chemist is employed, whether by Government or by the U.P.A.S.I.

Since writing the above, we have learnt from the *Times of Ceylon* that twelve estates will be selected for experiment, but details are still to be settled by the Thirty Committee.

NOTES.

The Nelliampathies. It is reported that new capital is finding its way to these Hills, and that the area under cultivation is being steadily increased. If Leaf-disease and Scale Pests will but spare the Nelliampathy Coffee-shrubs, there may be a glorious future before the compact planting community of those parts.

Estate Coolies in Ceylon. During the quarter ending 31st March last there were about 295,000 immigrants on Ceylon estates. Of these 104,000 were in the Kandy district, where there are 472 estates, and 88,909 at Nuwara Eliya, where the estates number 251. It is interesting to note that the births far exceeded the deaths in number.

Tea in the Wynaad. The Wynaad correspondent of the *Madras Mail* reports that tea is looking exceedingly well, and further extensions appear under contemplation, despite exchange and low prices. It should, however, be borne in mind, he adds, that great uncertainty exists as to the future of the tea market, and that a potent factor in governing the value of such produce is associated with China.

Batta for Jurors. A Minute by His Excellency the Governor of Ceylon announces that Planters and Superintendents of estates (Europeans and respectable descendants of Europeans) and Native planters, proprietors, and Superintendents of estates of not less than 150 acres in extent in cultivation, residing more than ten miles from the Sessions town, shall be entitled to special rate of batta of R7·50 per day.

Advertisement! A correspondent who has been to the "Indian Show" in Berlin writes from that city to a Colombo contemporary :—"I am glad to find that Mr. John Hagenbeck is so well advertising 'Ceylon Teas.' It is the best advertisement of Ceylon teas I have yet seen. 40,000 visit the exhibition weekly, and all cannot fail to see the beautiful tea-house, besides the large advertisement, and get a taste of real Ceylon—if they like."

"The World's Coffee Crop." A correspondent informs us that our recent figures (issue of 27th ultimo) were wrong, and as *Capital* gave them in the same way, he concludes we took them from that paper. He is incorrect in this, but our Calcutta contemporary and ourselves no doubt culled from the same bush! The mistake was just a trifle of three oughts, whereby millions were converted into thousands of millions! This was in the figures for 1870 and 1890.

Indian "Financing." The Government of India has floated a 3½ per cent. loan (rupees) at about Rs.94-12-0. The Great Indian Peninsula Railway Company has floated in London £250,000 3 per cent. debentures, with the guarantee of the Secretary of State for India in Council, at an average price of £100-2-2. Where, then, is the economy of rupee loans? With, say, 5 per cent. in hand at the beginning and ½ per cent. saved every year, the sterling arrangement does not appear more risky than the rupee one!

Calcutta Tea Sales. The Calcutta Tea Sales of 26th August were the largest this season; 26,000 packages were sold. The competition was fair, the quality being generally common, however. Buyers were cautious, buying at lower rates than last week. A few good Assams fetched fair prices. Fine teas are badly wanted, and are likely to meet with a good reception. There was a good demand for Bombay and outside markets at low rates. The exports from Calcutta to Great Britain to the above date stand at 42,750,000lb. compared with 43,500,000 for the corresponding period of last year.

Japan Tea. The tightness of money in Japan is said to be seriously embarrassing the tea trade there, and the rise in wages and in the prices of general commodities in recent years has likewise b severely felt by the planters. It is again stated th considerable decrease in the production of tea in Ja will be a feature of the present year. The Central Guild of Japan is, however, attempting to arrange for training of the *quality*, and is urging the producers in Ja to improve their methods. The Guild is also establish tea inspection offices in Yokohama and Kobe, with object of preventing the exportation of inferior tea.

Heavy Pruning of Tea. There has been much co spondence on this in Colombo of One planter avows himself a staunch believer in he pruning. He says the tea bush likes it! He says :—

"I have seen a heavy belt of big gum trees brought down havoc to look at the tea bushes planted below them. Branches off and stems split for 18 months are as fine looking tea and y ing as freely as the surrounding tea. No; heavy pruning is going to kill our tea."

But the Editor of the local *Times* observes :—

"That heavy pruning provides an artificial stimulus to the p causing it to throw out wood freely, every one is aware, but tha tree actually likes it, or that the more it gets the better it is, w hardly bring ourselves to believe."

Malaria and Mystery. The somewhat mysterious sile that has been observed regard the result of Surgeon-Major Ronald Ross' investigatio Malaria is resulting in the usual "leakage." A correspon writes to a contemporary that Dr. Ross' theory of the di bution of the malarial parasite by the agency of mosqui has now been accepted by all the leading authorities malaria in Europe, and he has conclusively proved it u the hilt, by means of experiments, as also its passag and through birds. He is even said to have recent Calcutta succeeded in infecting a number of sparrow different occasions with the malarial plasmodium, an birds it seems to take in a very virulent form, from w they generally die.

Coffee in North Wynaad. A recent visitor to North Wy gives a glowing description of progress made in coffee extens in that quarter, containing, as it does, perhaps the r remarkable property developed in the taluq during the few years. Here a block was taken up about three an half years ago by some South Coorg planters, who opened it on what may be termed the "Coorg princi and have succeeded (in less than three years) in bringi very considerable extent of land under coffee, and in a ma

COFFEE SHADE TREE.

Sun-dried Erythrina Lithosperma loppings, &c., contain ton :—

61·50	lbs.	Nitrogen.
57·38	„	Potash.
14·92	„	Lime.
13·68	„	Phosphoric Acid.

Seed cured under Messrs. Sutton and Sons' advice.

Orders should be booked early for the 1898-1899 crop of seed the parent trees of above analysis at Rs.6 per pound conta about 2,000 seeds. *Germination guaranteed.*

Only thornless variety extant, and is not procurable anywhere from the

MANAGER, ARIENKOW ESTATE,

Shencotta

hich reflects much credit on the resident manager and all llied in the enterprise. The *Madras Mail's* Wynaad correpondent can recall the time when the impression existed hat "Ichabod" might be inscribed over the fortunes of Iorth Wynaad, but, he says, our Coorg friends may now ith pardonable pride say *nous avons changé tout cela.*

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hina's Rivalry. There is a silver lining to the China cloud that the planter is warned to egard as threatening disaster, the deluge, &c. From "The Consular Report on the Trade of Hankow," it appears that profits in China are cut finer than here. The Hankow Consul notes that in the case of Indian teas the profit on apital employed is said to be as much as 7¾ per cent., while the profit per lb. made on teas sold averages 2-2/10*d.* The average profit on Hankow teas is estimated at about ½*d.* per lb., and it is evident that, in the event of any serious competition between Indian and Hankow teas, the latter could be driven out of the market, while the former would still fetch a handsome profit. There is now no demand for Hankow teas in London, except for such chops as can be laid down at not over 5*d.* per lb., and at this price decent sound teas are expected.

Coffee in the Wynaad. According to the Wynaad correspondent of the *Madras Mail,* coffee generally looks extremely well, though leaf-disease, which usually is in evidence (except on the higher elevations) in July, has at last begun to show up prominently. Whether the attack will turn out severe will probably be determined more or less by the character of the weather during the next few months. With sunny mornings, or showery drizzly afternoons, "rust" works its evil effects more acutely than in heavy rainy and cloudy weather. On the one hand young tea wants rain, whereas the coffee would be much benefited by a rainless break of three weeks. In another note the same writer says that one peculiarity in connection with the present light monsoon is the prevalence of leaf rot on isolated coffee bushes, situated in highly-manured fields, away from hollows, and the inimical influence of excessive *shade,* the rot having asserted itself on coffee after a June handling.

Tea & Coffee Markets. There has been a better selection of the finer teas brought forward at the sales, says the *Produce Markets Review,* and active competition prevailed especially for Assam growths, which are decidedly firmer. The comparatively small supply of fine tea will no doubt keep prices at a high level, at any rate until the imports become larger. That there will be a decline on current values later on is almost certain, especially when the trade have sufficient stock to meet their immediate requirements; meanwhile, buyers will no doubt purchase cautiously until increased quantities are forthcoming. The demand for the medium kinds has been fairly active at steady rates, the market being more liberally supplied with these descriptions. On the other hand, the common grades were keenly bid for and prices remain very firm, there being but a limited quantity available under 5½*d.* On the whole, the lower kinds of new season teas are inferior to old imports, and in most cases give a poor infusion. Darjeelings continue about equal in character to those previously offered and attract but moderate attention, although they are obtainable at comparatively easy prices. The public sales comprised 20,889 packages, mainly consisted of this season's imports, and 3,220 were withdrawn. *Coffee.*—With the exception of Tuesday, when four small sales were held, there have been no auctions this week, and they will not be resumed until Thursday. Only a small business has been done privately, although there has been rather more enquiry for the commoner grades of Guatemala and Salvador. At the present low range of prices for the cheaper qualities of Costa Rica importers are not anxious to sell, and, in consequence, have not pressed supplies forward, and they will, in all probability, continue to act in this way until there is a better demand. The finer qualities have maintained their value, and more business has been done in East India. Plantation Ceylon continues to fetch extreme rates, while Mocha is rather dearer. In the terminal market quotations have rather hardened, but only a small business has been done.

LONDON COFFEE RETURNS.

—	HOME CONSUMPTION.		EXPORT.		STOCK.	
	1898	1897	1898	1897	1898	1897
For the week ended July 23, 1898.	Tons. 290	Tons. 246	Tons. 334	Tons. 410	Tons. 19,689	Tons. 13,793
For the 29 weeks ended July 23, 1898.	8,646	8,371	15,198	12,095	—	—

Tea Companies. The report of the *Imperial Tea Company* for the year ended December 31st last states that the season, as a whole, has not been a favourable one for quantity or quality. In South Sylhet and Cachar the long-continued drought seriously retarded the growth at the beginning of the season. Rema division was severely damaged by hail in April, which so punished the older planting that it was considered advisable to leave the bushes unplucked, while Kuttal was subjected to a heavy loss through persistent sickness in the labour force. Such an unhealthy season has never before been experienced in this district. The Dooars gardens yielded well up to the middle of June, when blight made its appearance on the largest division, where the short fall amounts to 33 per cent. of a carefully-framed estimate; Assam was disappointing throughout the season in both quantity and quality, while Darjeeling quality was pence below the average of former years. The total yield was 2,092,469lb., against the estimate of 2,668,000lb. Of this 2,092,469lb., there were sold in Calcutta 1,621,694lb. at an average of 6 annas 1 pie and 470,775lb. in London at an average of 7.564*d.* The revenue account for the year shows a balance at credit of £2,491, out of which the dividend on the cumulative preference shares at the rate of 5 per cent. per annum from the date of allotment and payment of calls absorbed £1,385, leaving a balance of £1,106, which it is proposed to carry forward. The total crop for 1898 is estimated at 2,863,520lb.—The *Upper Assam Tea Company* has applied for the sanction of the court to a proposal

for the reduction of the capital of this company. Counsel stated that the original capital of the company was £250,000 in shares of £10 each. Of these shares 18,925 had been issued and fully paid up, the paid-up capital in respect of them being £189,250. In 1872 the capital was increased by the issue of 2,000 preference shares of £5 each, carrying a dividend at the rate of 15 per cent. per annum. These were all issued and fully paid up. Since that time the business of the company had not been very successful, and there had not been sufficient profit made to pay the dividend on the preference shares; so much so that the accumulated dividend on those shares had amounted to 15 guineas per share. A scheme has now been proposed and sanctioned by all the interested parties by which the 18,925 £10 ordinary shares were to be reduced to £1 shares fully paid by writing off £9 per share, thus involving a reduction of the capital of the company by £170,325. As regarded the preference shares, it was proposed to cancel them and to issue to the holders of each preference share 13 ordinary shares of £1 each in full satisfaction and discharge of all claims in respect of such cancelled shares. The result would be that the total capital of the company would be £79,675, divided into a like number of shares of £1 each, of which 44,925 would be issued fully paid. The misfortunes of the company were attributable to a succession of bad seasons. The matter stands over for further consideration.—*The Hapugahalande Tea Company*, Limited, shows a falling off, in consequence mainly of the fall in prices of tea and the rise of exchange. Tea in full bearing, 235 acres; New clearings, 150 acres; Jungle, &c., 369 acres 1 rood and 3 perches. Total 754 acres 1 rood and 3 perches. The quantity of tea manufactured during the season (including estate and bought leaf) was 188,455lb. Estimating the unsold tea at a safe valuation and excluding a surplus of Rs.528·50 on last year's crop, the nett amount realised for this product totals Rs.61,057·74, which is equal to 32·39 cents per lb. An interim dividend of 5 per cent. was paid on 1st March last, and a final dividend of 4 per cent. was declared at the annual general meeting on 27th ultimo. Authority has been granted to the directors to borrow £2,000 if need be to meet the expenditure incurred in opening up Uralindatenne.

GENERAL ARTICLES.

THE U.P.A.S.I. SECTION.

[UNDER THE CONTROL OF THE SECRETARY, U.P.A.S.I.]

THE Government of India (as "patron" of Coorg and the Cochin and Travancore Governments) have expressed their inability to render any assistance in the matter of the engagement of an Agricultural Chemist for Southern India. The planting interests of Cochin are not large, but those of Travancore are so important, and are expanding so rapidly, that the decision the Administration of that State has arrived at is regrettable. However, if the excellent example set by Mysore is followed only by the Government of Madras, a good deal will have been done towards the settlement of a most important matter. In other parts of the world the need of specialists in agriculture as well as in medicine, law, etc., is being more and more appreciated, and fresh indications of such appreciation are constantly broug notice in the Press.

In regard to Import Duties on Artificial Manures, Gov ment has exempted nitrate of soda, muriate of po sulphate of ammonia, sulphate of potash and kainit s The notification to that effect appeared in the *Fort George Gazette* of 26th July, 1898.

On the subject of railway freights on Artificial Manu the following information has been gathered: The *Ma Railway* classifies them first class at owner's risk and se class at railway risk, but superphosphates are conveye owner's risk in waggon loads of 270 maunds at the s rate as ordinary country manure, bone dust, etc., viz., 0 pie per maund per mile for distances 200 to 300 miles, 0·148 pie for 300 miles and over. The *East Coast Rai* classifies manure as first class, chemical manure as first at owner's and second class at railway risk. The *S Indian Railway* classifies common and artificial man together.

The supply of the 1897 Book of Proceedings ran sh To prevent a recurrence of this with the 1898 book, wh is in the Press, planters might kindly register their or early. If, through District Associations or by direct p card, each member of the community will state his requ ments, all shall be supplied as soon as the book is read probably towards the end of this month. Names addresses should be written clearly.

CEYLON TEA HAS NOT DETERIORATED.

Two well-known Planters come forward and support Mr. Bag assertion that Ceylon teas have not deteriorated. And they reasons for the faith that is in them. We gather from a pri letter received from one of them, however that, whilst he does believe that there has been any falling off in the quality of the plucked from the bush, he is inclined to think there is some det ration in the quality of the manufactured article. He does not so in as many words, but he very pertinently points out that if n estates some years ago obtained high prices for their teas, in probability it was because they were then securing a smaller quan of tea per acre, and had ample withering space to deal with the put of the estate, which, on many places, is not now the case. can only mean that owing to the large quantity of tea now c with in many factories and the inadequacy of the arrangements withering, &c., the same attention is not now given to the te used to be the case, with the result that the quality is not so goo it was. We do not see what other inference can be gathered this admission. Mr. Metcalfe is, however, strongly of opinion no deterioration has taken place in Ceylon tea at all, and adva as a reason for this that he has reports from London on his which say they are as good as ever they were. But though we very pleased, indeed, to hear this, we submit that the instances qu are hardly numerous enough to generalise from. We are not ass ing, let it be understood, that Ceylon tea *has* deteriorated, no far as we are aware, have we ever made any such dogmatic asser But bearing that opinion expressed on all sides, both in Colo and London, we think it well that the matter should be caref investigated, and it is chiefly for this reason that we have welco the appointment of Mr. Bamber as scientific analyst, as we fi believe that any faults which are attributable to mistakes in ma facture are the more likely to be discovered and rectified. We con we have not much faith in the theory that the actual leaf on the has not the same strength or flavour in it as it once had, and, th fore, suggestions that shade trees amongst the tea, or the increa age of the plant, were responsible for whatever was amiss have ne had very much support from us, though we consider the argume important enough to discuss and enquire into. If anything is wr we have always felt sure it would be found in the factory, and f

the very first we have drawn attention to the need for more careful supervision in the factory, and denounced the Ceylon practice of putting a poorly-paid native in entire charge of the tea-making, whilst this work in most Indian factories is under the direct personal superintendence of a skilled European. For this reason we have urged on the Planters' Association the advisability of employing the services of someone who, like Mr. Bamber, can carefully go into the matter of manufacture in all its many phases and report on it analytically and chemically for our benefit. Our correspondents say there has been no falling off in quality, but they do not say that the large quantities of tea now dealt with in up-country factories have in every case the same relative amount of withering space and attention that used to be the case when the total output of the same estate was a quarter the quantity now manufactured? Whatever is amiss we firmly believe is remediable, and it is for this reason that we have not ceased, in season and out of season, to direct attention to the matter. Let us glance at what our fellow-planters in India have been doing in the last few years. In the year 1888-9 the average for all India was about 10·42*d.*; in the same year the Ceylon average was 10¼*d.*—practically the same. Last year the average for India was, roughly speaking, just under 9*d.*, whilst the Ceylon average was just under 8*d.*, so that in the same time our teas have fallen 1*d.* more than Indian teas. When we come to compare our position in this respect with that of once despised Assam the disparity is even greater. We quote as follows from Messrs. Geo. White & Co's last yearly report :—

Ceylon average	...	1895	8⅞*d.*
	...	1896	8¼*d.*
	...	1897	7¾*d.*
Assam average 9 months	...	1895-6	10⅛*d.*
	...	1896-7	10⅜*d.*
	...	1897-8	10⅛*d.*

The low grown teas of Assam have maintained their price, that is to say, on a constantly falling market. We only wish we had been able to do the same. We cannot help thinking, therefore, that what Assam planters have done Ceylon men can do. It is, of course impossible to lay down hard-and-fast rules on such a subject as this, and on a number of estates, no doubt, all that skill and care and unremitting attention can do to maintain, and, if possible, to improve the quality of the tea has been done. In such cases we have every reason to believe the result has been satisfactory—*vide* the experience of Mr. Metcalfe, but he must admit that this has not been the case on every estate. Indeed, we heard the other day of a Superintendent who had not tasted his day's make for months, the bottom was burnt out of his kettle and his cups were stored away in some undiscoverable cupboard. Yet he fancied he was giving great attention to tea manufacture! He knows better now, and is, we believe, making much better tea. So far from any harm having been done to the enterprise by the light that has lately been let into the methods of manufacture practised on too many estates, we feel sure great benefit has been derived. The whole planting community is now hard at it trying their level best to turn out the best possible tea their estates are capable of, and we shall be very much mistaken if results in improved prices do not soon manifest themselves, not for a time only, but for a considerable period. Our belief is that we have touched bottom in prices, and provided only that the same care in manufacture is maintained, we see no reason why prices should not improve, presuming, of course, that no large extension of cultivation is undertaken for some time to come.

COFFEE.

The following additional extracts from the report on Coffee by Mr. Frank D. Hill, United States Consul at Santos, are a good deal more instructive than the brief cuttings on which we commented last week :—

Varieties of Coffee and Coffee Trees.

"Of the twenty-two varieties of coffee plants (a rubiaceous plant whose original habitat was Abyssinia), four belong to Asia, eleven to the west coast of Africa, two in Central and East Africa, and two in Mauritius. Among the different varieties, the following may be enumerated: Arabian, Mocha, Myrtle, Aden and Bastard. Moorish; Marron, of Rèunion; Monrovian, coffee of Gaboon; Saurine, yellow coffee (*cafè amarello*), red coffee (*cafè vermelho*), and the common coffee of Mexico and Central and South America. All these varieties are variously subdivided, taking name from the districts where they are produced or from ports whence they are shipped. For example, Brazil coffees are Rio, Santos, Bahia, Ceara, etc.

"The ordinary coffee shrub is an evergreen plant that grows to a height of about twenty feet, with oblong, ovate leaves. The fruit is a fleshy berry, having the appearance and size of a small cherry. Each fruit contains two seeds, embedded in a yellowish pulp, the seeds being inclosed in a thin membranous endocarp.

Regions Suitable to Coffee Culture.

"The regions best adapted to the cultivation of coffee are well-watered mountain slopes, at an elevation of from 1,000 to 4,000 feet above sea level, in latitudes lying between 15 degrees north and 15 degrees south, although it is cultivated with success from 25 degrees north to 30 degrees south of the Equator, where the temperature does not fall below 55 degrees Fahrenheit. Frost is a deadly enemy of the plant, and excessive heat hinders its normal growth. The low, hot lands of Mexico, the Carribbean Sea region—which produces the best cocoa in the world—and the South Atlantic are not adapted to its culture, the coffee lands in all these regions being found on the highlands that rise from the sea. On the American continent, coffee is produced all the way from Paraguay to Mexico; the Argentine Republic, Chile, the United States and Canada being either too far north or south for its growth.

"The shape, size, and colour of the seeds are the points that determine the commercial value of coffee. The shape depends upon the particular part of the plant upon which the seed grows, the size upon the nature of the locality of the growth, and the colour on the degree of maturity of the fruit at the period of gathering the crop.

"Brazil is the great coffee country of the world, being credited with 66 per cent. of the total product. Nearly all the twenty States that form this vast Mesopotamia extending from the Amazon to the River Plate produce coffee; but the true coffee zone is confined to the States of Rio de Janeiro, Sao Paulo, Espirito Santo, and Minas Geraes—Sao Paulo being the banner coffee State. This coffee finds its outlet at the ports of Santos, Rio de Janeiro, and Victoria.

Coffee in Sao Paulo.

"A few words as to the cultivation, harvesting, preparation, grading, marketing, and exporting of coffee from the State of Sao Paulo.

"Plantations.—Plantations are usually made on hillsides—the plant growing even in crevices of rocks—plants being placed at intervals of ten or fifteen feet. Hillsides are preferred because less subject than low lands to frost. At the age of four years, the tree begins to bear; it reaches its best at ten years, but continues to bear up to twenty and even thirty and forty years. The life of a plantation properly cared for is, however, about thirty years. Frosts and droughts damage crops here: insects very little.

"Harvesting the Crop.—The first flowering appears in September, and the berry ripens in April or May, when the gathering of the crop begins. The berries are stripped by hand. The berry contains two grains, with the flattened sides toward each other, each covered with an inner membrane called *pergaminho*, and a thicker outer coat called *casquimho*, and the outside tough rind or shell, *casco*. To remove these coverings, the berry is passed through the *despolpadar*, after having been washed in shallow cisterns. It is then dried—either spread out on a cement-covered pavement, called *terreiro*, in the sun, which is the old way, requiring about two months, or by the modern method of steam, which is used on the large *fazendas*, or plantations. After drying, the coffee, still inclosed in the inner and outer skins, is passed through machinery to prepare it for marketing.

PLANTING BOOKS.

Map of Ceylon Tea Estates Rs.9; colored Rs.10; Mounted in case Rs.14. Map of Ceylon Plantations, Plain Rs.8. Inga Va, Rs.2-8. Areca Palm, As.12. Cocoanut Planter's Manual, Rs.4-10. Ceylon Manual of Chemical Analyses, Rs.3-10. Tobacco Cultivation, Rs.3-10. India Rubber (now in the Press). Coffee Planter's Manual (now in the Press). All about Spices, Rs.3-10. Coffee Tree and its Enemies, Rs.1-8. All about Grub, Rs.1-5. Brazil as a Coffee Country, Rs.1-8. Cardamoms, Re.1. Ceylon Coffee Soils and Manures, Rs.1-9. All about Aloe and Ramie Fibre, Re.1. Estate Buildings, Rs.4-4. Coffee and Chicory, Rs.1-13. Coffee Cultivation in Ceylon, As.5. Tea Cultivation and Manufacture, As.5. Tea Cultivation in Ceylon, As.6. Tea at high elevations in Ceylon, As.3. Manuring of Tea Estates, As.8. To Economise Labour Supply, As.12. Planting, Pruning and Preparation of Tea, As.12. Salt for Agriculture, As.8. Cocoa, Cocaine and its Salt, Rs.2. On the Importance of Lining, As.4.

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Colombo.

This machinery consists of the *ventilador* or windmill, *brunidar* or *descascador*, and polisher or sheller.

"Marketing the Crop.—The crop begins to reach Santos about May, the largest receipts being credited to the latter part of the second semester of the year. Formerly, the planter sent his product to Santos in bags of any size, and the *commissario* (his agent, a very important man in coffee business) placed it in the standard coffee sack of sixty kilograms (132,276 pounds) for export. In Rio de Janeiro there is still a class of middlemen called *ensaccadores*, who buy from the *commissario* and sell to the exporter, reaping a profit on the resacking. In this State, on the contrary, the planter sacks his own coffee in the regulation sack. The *commissario*, who is accustomed to advance large sums of money on growing crops, receives, besides interest on these loans, a profit of 3 per cent. for his intervention in receiving the coffee and selling it to the exporters. This sale is made by a coffee broker, who receives 75 *reis* (1.05 cents) per bag from both buyer and seller. It will be perceived that the commissions of some of the leading brokers on large sales made daily afford a very comfortable income. The last man to be considered here is the exporter or his agent. He is, of course, the natural business enemy of the others, as he represents foreign interests who are desirous of buying as cheaply as possible, and he wishes to obtain a margin. Some of the large export houses, as Naumann, Gopp & Co., Zenner, Bulow & Co., and Goetz, Hayn & Co., buy direct to some extent from the planters, thus cutting off all middlemen.

"Business Methods.—A publication of the National Association of Manufacturers has the following on the methods of doing business at Rio de Janeiro and Santos:

Rio de Janeiro and Santos are the principal ports from which coffee is shipped. The manner in which the coffee business is conducted in Rio is somewhat different from the method followed in Santos, and a few remarks on the subject may be of interest. In Rio the *commissarios*, or planters' agents, sell to the *ensaccadores*, or intermediates, who classify and sack the coffee. Each coffee-exporting firm employs its own brokers to buy from the intermediaries. The broker's interest, therefore, is to act solely on behalf of the exporter, and, as he is well posted on the stock and requirements of the market, and as the intermediaries have the coffee ready for sale, duly classified, he can generally procure the exact number of bags of any type he may be instructed to purchase.

It is not so in Santos. There the planters' agents sell direct to the exporting houses, employing their own brokers. The latter's interest is, therefore, with the growers. The coffee is not classified as in Rio, but is simply sold in lots. An exporter who has to execute an order for a certain type of coffee may have to buy in excess of his needs, in order to be able to separate and obtain the quality and quantity required. The remainder, should it not be of a standard suitable for shipment, must be disposed of in the market. In either case the exporter naturally regulates his invoices so as to cover any loss the transaction may entail. It will be seen that with greater capital and the employment of thorough experts to buy the coffee, the Santos market offers every inducement to exporting houses. They would not only save profits, by saving the intermediaries' commission, but often, by careful selection and judgment in shipping, surpass their expectations.

"Coffee Grading.—Coffees are graded in this market as follows:

"Fine.—Consisting of clean coffee of regular bean.

"Superior.—Bean regular in size, but may contain a few husks or black beans, called 'quakers'—sticks, stones, and dirt not allowed.

"Good.—Evenness of bean not absolutely insisted upon; may be black beans or husks, and even a few broken beans, sticks, stones, and dirt excluded.

"Regular.—In this grade defects appear, large quantities of black beans, hulls, stones, sticks, or dirt.

"Ordinary.—Contains foregoing defects and some broken beans.

"Triage.—The last or lowest of grades, is made up of broken beans, and has all the other defects enumerated.

"In the vernacular (Portuguese) these six grades are *fino*, superior, *bom*, regular, *ordinario*, and *escolha*. The berry is sometimes coloured before shipment and sometimes milled. The export firm of Rose and Knowles is successful, and another mill is being built, whose owner proposes to mill 500,000 bags (66,000,000 pounds) a year. Coffee, for the Cape of Good Hope, for example, is artificially coloured black to meet the taste of that market. There are two classes of beans—flat and round—and this determines the classification of the The former is the Java, the latter the Mocha type. The pea-berry, or Mocha type, represents 3 to 6 per cent. of the p tion. It is graded to-day 2 *milreis* above the 'base' or st price. The same tree produces both varieties."

TEA.

EFFECTS OF HIGH EXCHANGE AND INCREASED PRODUC

MESSRS. GOW, WILSON AND STANTON, 13, Rood London, E.C., have published an interesting paper on Effects of High Exchange and Increased Production o Tea Industries of India and Ceylon." The diagrams which this is illustrated cannot, unfortunately, be r duced here, but we give below the gist of the Lo brokers' remarks, which have a double aim: (1) to i "those affected" to use every endeavour to have w practically a differential tax on British-grown Tea rem and (2) to impress upon planters the need for forcing products into new markets. Incidentally, Messrs. Wilson and Stanton show to what extent the efforts al made in this direction have succeeded.

They say:—

On broad lines it may be said that Tea is produced in currency and paid for in gold currency. In other words, a very large percentage of the price obtained for the article has converted into rupees, in which the producing expenses are The higher the gold value of the rupee, the fewer rupees w seller of Indian and Ceylon produce get for his sterling pric when the rupee is worth 1*s.* 4*d.* the pound sterling exchang only 15 rupees, while it exchanges for 20 when the rupee is only 1*s.* The Industries are now of such vast magnitude that of 1*d.* in the exchange means a difference of more than £4 sterling to the producers. The artificial value recently given rupee by the closing of the mints by the Government of handicaps the growers of India and Ceylon in their compe with their rivals in other Tea-producing countries whose curre ruled by natural laws. . . . . The rupee fell steadily from 1886 to There was a very slight recovery in 1889, and a rapid rise in which was due to the passing of the Sherman Act by the U State's Congress in that year. A heavy fall took place in 189 continued until 1895, when the rupee went as low as 1*s.* $1\frac{5}{8}$*d.* fo average of the year. Then, at last, the closing of the mints to tell, and the gold value of the rupee rose gradually to 1*s.* 2 1896 and 1*s.* $3\frac{1}{2}$*d.* in 1897. . . . . For a few years previous to 18 producer had been able to combat the almost persistent fall i London average price of Indian and Ceylon tea by the decline value of the rupee, and notwithstanding a fall of nearly 20 per in the London market price, he received an increased numb rupees for his produce. Since 1895 the planter has not only h face still lower markets, but has received a less number of r for his local expenditure, in proportion to the rise in exc which has taken place; and although the fall in the London pric only about 6 per cent., the fall in the remitting power amounte figure approaching 20 per cent. What is true of Tea is, of course of all Indian produce. Everything that has to be raised in Ind Ceylon and sold abroad is injuriously affected in precisely the way as Tea. China is not handicapped in this way, for the Ch Government has not yet either adopted the gold standard, o ployed methods for giving a fictitious value to the dollar. Sil China, therefore, is regulated by natural laws, and hence w industry is rapidly prospering in places where the benef European administration are experienced. Practically, India a present time, when the rupee is but a little under 1*s.* 4*d.* o money, gets only about 15 rupees for the sovereign for whic sells a commodity. Whereas a piece of silver, if current in Chi exactly the same weight and fineness as the Indian rupee, wou worth only $10\frac{1}{2}$*d.* Consequently the sovereign obtained, let us for China Tea exchanges for $22\frac{6}{7}$ silver pieces exactly equivale

MILLIE & REDMOND, late P. THOMPSON & CO., *Ootacamund, Engineers and Contractors.*

he rupee in weight and fineness. The difference between 15 and 2$\frac{26}{7}$ is about 50 per cent. In other words, the gold which the Chinese rader obtains in Europe by the sale of his goods, returns in silver oin about 50 per cent. in excess of what it does in India and Ceylon. Hitherto, fortunately for Indian traders, the Chinese have not been ble to avail themselves of the advantage they have over their ndian competitors. But the whole of Europe is now scrambling ot only for railway, banking, and other concessions, but for erritorial possessions and for trading privileges. Is it not possible hat, before long, European skill and capital will be applied to the reation in China of the industries which have made such strides of ate in India? Already machinery has been sent out, with instructions to endeavour to improve the quality of China Tea, and to make t more resemble the better qualities of Indian and Ceylon Tea, and ve take the following extract from the Consular Report just issued on the "Trade of Shanghai for the year 1897":—

"An interesting incident in the past season was the experimental use at Wenchow of a Machine Roller, which proved beyond doubt that the most ordinary China Tea is capable of astonishing improvements if treated by modern methods. Wenchow Tea made by the old native process is of the most inferior description, but by being carefully made and machine rolled a very fair drinkable tea resulted."

We ourselves hold that it is no more possible to make China Tea resemble Indian and Ceylon Tea than to make Darjeeling-flavoured Tea in Sylhet, or Dimbula-flavoured Tea in the Galle District. We have no liking for the China-produced article, but that is no reason why the point of the above extract should not be watched, as the displacement of China Tea in the past has been largely due to its inferior quality. China is a larger country than India—has varieties of soil and climate. It is difficult, therefore, to say what article cannot be produced. Suppose that, just as India created a Tea industry in competition with China, China should now, under European guidance, create a jute and an indigo and a grain industry. What would become of all those industries in India, handicapped as they are by a currency which gives the Chinese competitor so great an advantage. In a short time China will be provided with better means of communication with the rest of the world. If European skill and capital are applied, not only to producing all the things which China is capable of growing, but also to the manufacturing, say, of cotton, what will become of the competing industries in India, and what will be the effect, not only upon the mass of the population, but upon the revenues? A great depression of the industries, it need hardly be said, would very seriously reduce the tax-paying capabilities of all persons engaged in them.

The question of exchange is thus a most vital one for the Tea producer of India and Ceylon, and when agitating for his grievances to be remedied he should draw attention to the vast amount of good that the industries have done in the past by opening up what would otherwise be waste land, and thus giving employment to about 1,000,000 of natives. He should point out the fact that the £35,000,000, which are estimated as having been laid out, was attracted in the belief that the enterprise would never be unfairly handicapped by the Government of the country; and that during the last year further extensions of cultivation have been greatly curtailed by the distrust created in the management of the monetary affairs of the country. The Indian and Ceylon Tea producer does not, however, feel the whole of the disadvantage in which he is placed against his rivals by the disparity in the silver exchange, as China Tea has to bear certain internal and export duties; besides which there is some slight loss in converting "silver" into "copper cash," in which part of the producing charges are paid in that country.

New Markets.—It is beyond question that the fall in the average price of Tea is due primarily to the fact of supplies being in excess of demand. Owing to the amount of land planted during the last three or four years that will be coming into bearing, this state of things may continue for a time. Thus the only course open to producers is to turn their attention to new outlets. Before going further into this point let us see what has been done in the past. . . . . The actual increase in the use of British-grown Tea is distinctly satisfactory so far as it goes, but in face of further increases in supplies, and the small margin of profit left to the producer, the demand will have to be made to continue, if possible, without further concessions in prices. Both the Indian and Ceylon Tea Associations are doing good work in opening up new markets, but they will require more support from the planters, as their difficulties are increasing instead of diminishing. The chief difficulty is again the fictitious value at which the wage paying rupee is kept. It is in the endeavour to open up the important markets of Russia and America, representing some 150,000,000 to 200,000,000lb. of Tea annually, that the difference in Exchange tells so severely in favour of the China article. The sympathies of the consumers of Tea in the United Kingdom have naturally been with their own kith and kin producing the article in their own Colonies; but there is no such sympathy with British-grown Tea in many other countries. Consequently, in foreign markets, Ceylon and Indian Teas have to rely entirely on their merits. We have in many previous circulars pointed out where new markets are to be obtained, and in conclusion we desire to impress upon all interested in producing British-grown Tea the necessity of keeping up the quality of their produce, and substantially helping the movements made towards the extension of new markets.

INDIAN CURRENCY COMMITTEE.

Statement by G. L. Acworth,
Late Chairman, United Planters' Association of South India.

Mr. Chairman and Gentlemen,—In coming before you as the representative of the United Planters' Association of South India, I would most earnestly ask you to remember that I do not merely represent the European planter of tea, coffee, cinchona, or whatever product European enterprise may be engaged in developing, but I speak also in the interests of the whole mass of native producers, the scores of millions who are unable to make their voices heard, who are really the backbone of the Great Empire of India, and on whom the prosperity of that Empire depends.

From the letter of the Chairman of the U.P.A.S.I. to the Secretary to the Government of India, Finance and Commerce Department, dated 14th February, 1898, and published in the Blue Book containing the proposals of the Government of India, you will have observed that we producers are strongly opposed to the rupee being fixed at so high a rate as 1/4, our reason being that it handicaps us so heavily in our competition with other silver-using countries as to ensure the extinction of our various industries. With the price of silver at 26*d.* per ounce, whilst the rupee is forced to 1/4, we have a duty imposed on our produce of not less than 40 per cent., or, to put it in another way, the produce of all silver standard countries coming into competition with our own produce receives a bonus equivalent to 40 per cent. In these days of keen competition and narrow margins, it is hopeless to suppose that any enterprise so heavily handicapped can exist.

That these are not idle words the destruction of the Sugar Industry in the West Indies is a proof, for it has been the competition of bounty-fed beet, which has crushed that industry, and not the superior merits of beet sugar, which is well known to be inferior to that raised from cane.

India is essentially a producing and exporting country, and it is by her exports that she must live and thrive. Tea, coffee, cotton, jute, cinchona, wheat, pepper, hides and seeds are some of her most important products, and all these come into competition with such countries as China, Japan, Brazil, and the Central States of America, where the standard is either a silver one, or practically a silver one, as in the case of Japan and Brazil.

The Government of India, in reply to a memorandum from the Darjeeling Planters' Association on the subject of exchange, stated:

"That a country as a whole makes no gain in its international trade "by a depreciation of its standard, the higher prices received for ex-"ports being balanced by those of imports."

This argument, however, holds good only on the assumption that the value of the Import Trade of India is as great as that of the Export, whilst a reference to statistics will at once prove that both in volume and value the Export far exceeds the Import Trade.

Further, the value of the Export Trade politically, quite apart from its intrinsic value, is of vital importance to the Empire. The over-population of many of the districts in India is a problem, which, even now, causes the gravest anxiety to the Government of India. To a certain extent, local manufacturers and the growth of produce for export, such as coffee, tea, cotton, wheat, jute, &c., have been a relief to the congested districts. Cut off these outlets (and who can doubt but the imposition of a 40 per cent. duty will slowly but surely crush the producing exporter), and the problem of the congested districts, with their inevitable poverty and the

discontent and disaffection attendant thereon, will be a difficulty greater than any the Government of India has yet faced.

It must never be forgotten that the ryots, the most numerous class in India, the chief payers of revenue to Government, are quite independent of Imports, and can satisfy their wants, as they did formerly, from local produce.

I would respectfully maintain that the first duty of Government is the happiness and welfare of the greatest number of its citizens. In India the greatest number, by scores of millions, are the producing classes, and it is these whose very means of existence are in danger of being wrecked.

I would further observe that the strangling of the Export Trade of India will be equally fatal to the importer, as it is solely by Exports that Imports are paid for.

Hitherto the decline in the value of the rupee has not fallen heavily on the consumer of imported goods, as a comparison of prices in 1875 and 1892, respectively, will prove. In the latter year, oilman stores, wearing apparel, cotton goods, coal, and metals of all kinds were as cheap or cheaper than in 1875, whilst curiously enough, steel rails were in 1892 cheaper by Rs.13 per ton than iron rails were in 1875.

From the point of view, therefore, of both Exporter and Importer, there is nothing to be said in favour of the artificial enhancement of the value of the rupee, whilst the argument of the Government of India that the extra price received for exports goes to pay for imports falls to the ground.

The Government of India, in reply to the Darjeeling Planters' Association, further asserts that the producer makes a temporary and unfair gain at the expense of his employés and others, to whom he makes fixed payments, also that this gain cannot be permanent, but is counterbalanced by the tendency to over-production, consequent reaction and depression, and a liability to sudden falls and rises in prices, all resulting from the want of a common standard of value between two countries.

The answer to the argument, that producers make an unfair gain at the expense of their employés, is found in the Planters' checkrolls and pay sheets kept over a long series of years. We are now in South India paying a slightly higher wage than was the case when I first went to the country, some twenty years since, whilst the purchasing power of the rupee for common country grains, such as are used by our labourers, is as great as ever, and enables them working five days a week, to lay by a full fifty per cent. of their income. This is the case, notwithstanding the fact that tea has fallen in value during that time pretty nearly one-half, and has now touched so low a point, that, with a high rate of exchange, it could not be profitably cultivated.

The argument as to over-production seems to me so forced as hardly to require an answer. So long as there is a demand for an article and it can be profitably produced, it will be produced. When profits disappear, matters will gradually right themselves by a decline in the production, until such time as the demand exceeds the supply and the profitable point is again touched, when production will be once more stimulated. Nobody but the producer suffers by a fall in values, whilst such a fall is of enormous benefit to the consumers, who are by far the greater number, and I again assert that it is the welfare of the greater number that should be studied by the Government of India in common with all other well-conducted Governments. For instance, everybody must agree that the decline in the value of tea and cinchona, respectively, has been of immense benefit to the public, whilst nobody can contend that the present high price of wheat and the consequent rise in the value of the quartern loaf from 4*d.* to 7*d.* is anything but a disaster to all but Farmers and Landlords.

Owing to the increase of labour and capital throughout the world, and moreover to the modern means of rapid transport, the over-production of certain classes of goods is almost a necessity, and I maintain that the gradual depreciation of the standard of India of late years has been a distinct advantage to her, in that it has enabled her to exist as an exporter during a time of over-production throughout the world of almost all the commodities in which she deals. Had not this been the case, the position of the Government of India would at this moment be desperate.

The Government of India further contended in its reply to the Darjeeling Planters that the adoption of a single standard of value for England and India would place China and other silver-using countries at a disadvantage. Such a statement almost takes away one's breath. It is certainly not the opinion of experts. The Madras Chamber of Commerce states, "that the Indian producers will be he handicapped in competing with silver-using countries by a 1/4 rupee." In China itself the merchants are alive enough to advantages accruing to them from the proposed legislation in I and the Foochow Tea Improvement Company lay stress i prospectus on the fact, that "China now has an advantage over and Ceylon in cheap silver," but understates that advantage it places it, as it does, at 25 per cent., for, with a rupee at 1/4 silver at 26*d.* per ounce, the gain to China is more like 40 per c

The Ceylon Silver Currency Commission of 1894 states in its re

"The class which produces commodities for export other "tea appears to have augmented its business in a very no "degree. The value of the exports has more than doubled (meas "in rupees) in the last fifteen years, measured in gold the incre "is 60 per cent.

"We are of opinion that the low price of silver has stimul the production of many commodities."

Further on, in reference to Tea, the staple of the Island, the mission reports: "The real capital value of estates must depe "their profit-yielding capacity, and if that capacity has been r "tained owing to low exchange, the owner, though he might n "able to get the same sterling price originally paid on purch "the estate when the rupee was high, is indebted to low exch "for having counterbalanced the fall on the sterling value o "produce, which would otherwise render his property profitless "possibly valueless." The same Commission in paragrap "continues: "Our opinion is that up to the present time a bu "silver currency, coupled with a falling rate of Exchange, has "for the benefit of the greatest number, and, as far as we ca "the action of the Government of India is not advantageous t "general interests of Ceylon."

Substitute India for Ceylon, for the situation in the two coun is identical. Both are affected in a similar manner by the closi the mints, and both will be similarly affected by the proposed lation. The action of the Government of India is therefore advantageous to the general interests of India.

I think I have said enough to show that the trade of India Ceylon will be anything but stimulated in its competition with silver standard countries.

To sum up: The Government of India contends in its reply t Darjeeling Planters' Association:

1. That international trade must be considered as a whole.
2. That trade and production are extended by everything adds to the welfare of the country at large.
3. That illegitimate and temporary gain by one section o community at the expense of another can only prove injurious i long run.

I am fully in accord with this summing up, with the follo qualification:—

1. International trade must be considered as a whole, but the first duty of every Government to so legislate that the cou it governs may derive the greatest possible benefit from its tra its exchange with, or in competition with, other countries. proposed policy of the Government of India is in direct contradi to this law.

2. Trade and production are extended by everything that to the welfare of the country at large. With this I also agree I contend that the community at large consists not of a few sal officials, nor even of the Europeans, whatever their occupation, are really strangers in a strange land, whose object is to acqu competency out of the country, in which they are exotics, and, ha acquired it, to retire therewith to their own land. I assert, a would do so with all the emphasis in my power, that the commu at large in India consists of the millions on millions of produ not merely whose comfort, but whose very existence almost, stake. If this proposed legislation is carried through, the time come,—it will of course take time—when the result will throug the length and breadth of India be felt disastrously in every vil Gradually it will come to the understanding of the villager, f will be taught him by the agitators, of whom even in India the no lack, and who will be quick to seize the opportunity, that additional poverty and misery are due to the falseness of the In Government, which has at last committed an act of breach of f and gone back on a word once held to be sacred. It is the In Government, he will be taught, which has made his fields productive; which has stopped the periodical visits of the middle who used to purchase the surplus of his small crops; which

made it useless to send the bullock's hide roughly dried to the neighbouring market for sale; which has reduced the output of the oil mill, for there is nobody to buy the surplus oil. Discontent and disaffection will most surely result, and such disaffection amongst the whole producing population of India is a far more serious matter than the revolt of an army.

This will of course take time, all great economic changes do, but the time will as surely come as that this Commission is now sitting.

3. Illegitimate and temporary gain by one section of the community at the expense of another can only prove injurious in the long run.

Quite so. Again I agree with the Government of India, and once more I say that it is that Government which makes the illicit and temporary gain. To artificially raise the value of a currency, which has existed and served its purpose for ages, in order to relieve its own embarrassments, can only be described as most illegitimate, and moreover the Government itself, with all its staff of officials, from the Viceroy to the lowest grade European police officers, is the merest fraction of a section of the community—they probably do not amount to one per cent. of the population. The Government will of course gain, but its gain can only be temporary. The export trade, the backbone of the country, must diminish, and, as it gradually diminishes, the capacity of the population to pay its taxes will decrease. With the dwindling of exports, the import trade will decline, for it has been proved, though it is almost too self-evident a fact to require proof, that imports increase *pari passu* with exports. By the decrease of this trade another important source of revenue will be cut off, and the last state of the Government of India will be worse than the first.

The obligation of that Government to remit annually between £16,000,000 and £17,000,000 sterling will remain. This remittance should take place in exported produce, but, speaking as a producer myself, I am confident that this trade will not continue on its present scale, and there will be an insufficient balance to meet the drafts of the Council.

There is nothing to warrant the assumption, held by some, that the present volume of the export trade will continue under the 1/4 rupee basis. The average rate of exchange for

1894-95 was 13·1*d.*
1895-96 „ 13·698.
1896-97 „ 14·45.

These were the rates for the past three years since the closing of the mints, and it is only comparatively recently that we have seen a 16*d.* rupee. It is, therefore, premature to conclude that the volume of the export trade will continue at its present level, for there is no experience to justify such a conclusion, whilst the opinion of the whole body of producers is against it.

The producer knows his business, he knows from actual experience that the present artificial value of the rupee imposes on him an income-tax bigger than has yet in the history of the world been placed on any one class of men.

It will of course take time to test this question of exports, as many a producer, who has this capital so invested as to be unable to shift it from one product to another, even were another product available, will struggle on and pledge such credit as he has in the hope of things righting themselves, in my opinion vainly so, and I for my part have no intention of fighting the inevitable, or throwing away good money after bad. The moment the proceeds of my produce are insufficient to cover my expenses, I shall abandon my estates with all their valuable plant and machinery, the fruit of twenty years' patient work, whilst five hundred labourers will be thrown out of employ. Doubtless many others, unwilling to incur a hopeless debt, will adopt this policy, and in this way the beginning of the end for the producers will come.

I think I have now said enough to justify the opinion of the producer that an artificial rupee is against the interests of the Indian Empire, as also detrimental to the welfare of the greatest number.

It only remains to suggest a remedy. My Association strongly urges the re-opening of the mints, and allowing the rupee to fall or rise with the value of silver.

We are quite aware that violent fluctuations in the value of the rupee are most prejudicial to mercantile transactions, but we are of opinion that, when once the Government of India has declared its determination to re-open the mints and to abide by that decision, though the rupee will fall heavily, until it has reached its true level, the fluctuations thereafter will not be violent, in fact no more violent than the fluctuations of the silver market, by which the rupee is, or rather ought to be, controlled. We further believe that speculation would be reduced to a minimum.

We are fully aware that a rupee so low as 10*d.*, 11*d.*, or even 1/- entails great losses to the Indian Government in its remittances, but we are prepared to do our part and assist the Government in meeting those losses.

With a rupee at 11*d.* the loss to the Indian Government is estimated by the Secretary of State at fifteen crores. Other authorities place it considerably lower, but let us grant that it is that sum.

A part of this loss is already covered by taxation, and it is, therefore, unnecessary to consider it.

The balance of the loss, whatever it may be, we producers are prepared to pay by having an export duty (not larger than the amount necessary to cover it) placed on our produce, provided —

(1) That should the rupee rise in value, or the export trade increase, which it almost certainly would, the duty should be proportionately reduced.

(2) That the exports of Ceylon should be taxed to a like extent.

No doubt Ceylon producers would oppose such a measure and would justly argue that their Government is not in want of funds. It is, however, only fair that our brethren in the island competing with us in India should be placed on the same basis as ourselves. But I would suggest that, should this tax be imposed in Ceylon, it should be utilized for the benefit of the planters, either

(1) By developing the railway system in the Island or
(2) By the entire removal of medical and road cesses, or
(3) That the proceeds of the tax should be handed over to the Ceylon Planters' Association for the purpose of pushing the consumption of Ceylon Tea and other products throughout the world.

Our brethren in Ceylon must bear in mind that the Indian Government must pay its way, and they should be prepared to allow us to assist that Government, and by reaping no unfair advantage over us through our misfortunes to cheerfully bear their share of the burden. Should any one of my suggestions as to the disposal of the proceeds of the export duty in Ceylon be adopted, the indirect benefit to the producers of all classes will be great. I have now laid our case before you, but before concluding I would ask you to consider what enormous interests (quite apart from those of the Indian Government) are committed to your charge.

The value of the tea, coffee, and cinchona estates in South India alone were estimated by the South of India Planters' Enquiry Committee of 1896 to amount to 13 millions £ sterling at the present rate of exchange; the estates give employment to some 325,000 labourers, and disburse annually in wages 1¼ million £ sterling. In North India the tea industry is as large, but gives employment to half a million labourers. For Ceylon I have not the figures, but it may be safely assumed that the planting industry fully equals (if it does not exceed) that of South India.

The total value therefore of tea, coffee, cocoa, and cinchona in India and Ceylon together must amount to fully 40 millions £ sterling, and must find employment for at least one million labourers; but it must never be forgotten that, great as are these, which may be classed the European industries, they are in India at any rate the merest fraction of the agriculture of the country. I repeat once more that all we Planters, who appear before you, represent not ourselves alone, the few European landholders, but that our interests are identical with the whole mass of producers; in other word, the tax-payers of the great Indian Empire.

GRANVILLE L. ACWORTH.

STATEMENT BY THOS. NORTH CHRISTIE, ESQ. (OF CEYLON).

BEING much more interested in Ceylon than in India, I should premise my statement by explaining the relevancy of Ceylon evidence to the present enquiry. Although the Indian Government in their recent despatch (3rd March, 1898) claim for their Currency policy Imperial importance and Imperial aid, and so open the question to the consideration of other than purely Indian views, there is not on the part of Ceylon any expectation that its interests could in the very least be allowed to interfere with those of India. The attitude of the Colony in this matter is that its 1893 Currency Commission (of which I was a member) cleared up issues and elicited facts which had not previously—nor have they subsequently—been investigated by any authoritative body, and that Ceylon affords a most valuable object lesson to those who desire to see what the effect of currency changes has been, and is likely to be, on the real prosperity of the people in a producing country. There is practically

no difference between Ceylon and India in this particular; the prosperity of the people in both countries depends on the remunerativeness of their agriculture, and the ability of each country to meet its home (English) charges for debt, &c., entirely hinges on a favourable balance of trade being maintained. It is true, however, that in the matter of sterling payments, the position of the Government of India is not such an easy one as that of the Government of Ceylon, and that the anxieties of the former have not been shared by the latter owing to its relatively smaller gold obligations.

In the investigation by the Committee of the probable effects of the proposed changes upon the internal trade of India, *the* issue of most far-reaching importance is whether on the whole a high or a low rate of exchange is beneficial, and the finding as regards Ceylon, after most careful investigation, was:—

"Our opinion is that up to the present time a bullion silver cur-
"rency, coupled with a falling rate of exchange, has been for the
"benefit of the greatest number—in other words, the sum of the
"advantages has preponderated over the sum of the disadvantages
"and, as far as we can see, the action of the Government of India is
"not advantageous to the general interests of Ceylon, provided—

"(*a*) That the re-adjustment of all local salaries, wages and prices
"to the altered value of the rupee could be deferred for an indefi-
nitely long time;

"(*b*) That the future rise in the general revenue would be sufficient
"to keep pace with the increase in the obligations of the Govern-
"ment consequent on the altered value of silver, such rise being
"secured either by the revenue naturally rising *pari passu* with the
"increased demands on it, or by additional contributions from the
"producing interests specially favoured by a bullion silver currency
"and low exchange."

"With reference to the possible re-adjustment of local wages and
"prices measured in silver, while we find that there is in Ceylon a
"slight tendency towards increasing wages, and a more general
"tendency towards increasing prices (after taking duly into account
"local exceptions and certain prices which have decreased), such
"increase bears no actual proportion to the progressive decline in
"the gold price of silver, and it can hardly be attributed thereto.

"It is our opinion that the date of such a general adjustment of
"wages and prices is uncertain: that it will probably be remote,
"and that it may be postponed for an indefinite period of time."

This, be it remembered, was during a period when India, Ceylon, the Straits, China, Japan, &c., were all sharing the fall, but when, as at present, the high rate of exchange is an artificial one, and partial only to India, Ceylon, and Mauritius, the crushing disadvantage to these countries where they now, or may hereafter, come in competition with silver-using countries, cannot be lightly thought of, and claims the most careful consideration. There is one rather convincing example of the benefit which a silver currency is to an industry competing against gold currency rivals, and that is the sugar production in Province Wellesley. It is the only one of England's sugar Colonies which is prosperous and not on the verge of ruin—it is the only one with a bullion silver currency.

I would most especially direct the attention of the Committee to the necessity of their examining the only attempt (so far as I know) of the Government of India to rebut the producer's belief that low exchange benefits him. It is contained in the letter of the Government to the Darjeeling Planters' Association, dated 12th October, 1892, and on that document the Government of India evidently still rely, for it is referred to in their despatch of 17th March last. The entirely erroneous premises on which the reasoning in that document is founded were exposed by the Ceylon Currency Commission, thus:

"In the reply of the Government of India to the Darjeeling
"Planters' Association in the following conclusion:—

(1) "That a country, as a whole, makes no gain in international
"trade by depreciation of its standard, since the extra price received
"for its exports is balanced by the extra price paid for its imports.

"This conclusion appears to us to involve two assumptions of
"fact, neither of which is true respecting either India or Ceylon.

"It assumes (untruly) that the commodities exported and the
"commodities imported exactly balance each other in value.

"In both countries the exports largely exceed in value the imports,
"leaving a surplus in favour of the country which is paid in bullion
"(either gold or silver) at the option of the country entitled thereto.

"In India the surplus imported in bullion is shown at page 239.
"It has risen from an average of Rx.5,394,897, from 1870—75 to
"Rx.14,099,390, for 1890—92.

"The argument of the Government of India would regard
"last surplus as no more profitable than the first, or indeed a
"more profitable than no surplus at all."

"It assumes (untruly) that the standard of each other co
"with which the country trades is identical."

"That is not the case with regard to India or Ceylon; the t
"of both is shared between countries with a gold standard
"countries with a silver standard."

Even had the position of India's trade been as was (wron assumed, the reasoning would still be unsound, for it takes no of the benefit which accrues by a producer exporting more and sp ing the full amount of his increased income on imports. Fur the reasoning that any benefit derived by anyone from a currency change can only be at the expense of another member o same community would, if true, apply equally to the benefit w the Government of India expected to get by their currency manœu And still further, the argument that the gain is not permanent is counterbalanced by a tendency to over-production and conseq re-action would apply with equal force to a rise in market pr and would condemn as illusory the benefits which the credu producer has hitherto imagined he derived from many of the de of mankind to cheapen production and land and sea transp Additional profit of course means additional production, and tha its turn, means lower prices, but it is the action of an all-round and not one singular to exchange benefits.

The value of Ceylon as an object lesson in this matter is th presents, in a compact and reliable form, an index of the resul high and low, natural and artificial, exchanges, undisturbed by famine or plague. The prosperity of all classes in Ceylon stea advanced with falling exchange, and with the artificial rise scarcity of currency came a great check; the margin of profit most seriously gone down, in some cases disappeared, and the I rate has stood for months at 12 to 15 per cent. The price of tea staple product, has gone down, and verified the prediction of the Currency Commission:

"The effect of this exchange premium in China's favour w
"therefore be manifested less by any remarkable increase in
"export of China tea or displacement of Ceylon tea, than b
"prolonged reduction in the price of tea to a figure which
"so low as to prevent Chinese growers, even with a premium of,
"1½*d.* or 2*d.* per lb. in their favour, exporting with profit."

Had Ceylon been competing during the last few years on currency terms with China and Japan, it would undoubtedly displaced the teas of these rival countries to the extent of a many millions of lb. in the American, Russian and other mark and, as a consequence, the English market would have been reli of the over-supply which has depressed it. Up to the time when artificial value of the rupee rose considerably above the lowest p which it had reached when a bullion coin, and the scarcity Currency became acute, every index of a people's prosperity un takably showed the advancing welfare of all classes in the Colo since then the turn has taken place, prosperity has waned, Europeans and natives alike feel the baneful effects of the pre Currency position. I draw precisely the same deduction from Indian statistics—they showed a steady and great increase in prosperity of the people, in their purchasing power and in t accumulating capital. The later figures tell a different tale, distorted as they must have been by the influences of plague famine, it is impossible to attribute the decline solely to the state o Currency, although it must have been a potent adverse factor. only do the statistics relating more particularly to the people te the steady advance under low exchange, but the facts and fig connected with the Government's finances bear witness to the conclusion. In spite of the great decline in the opium revenue the much increased rupee charge for sterling payments, the Fin Minister in his last statement was able to show that during twenty years (1878—1898) the revenue had exceeded the ordi expenditure by Rx.50,998,294, and he declared, "The record of tw years' finance which I have displayed in the above figures is a b one than can be shown by almost any country in the world bu United Kingdom." The prosperity of the people was reflected i expansion of Revenue, for there has practically been no increa the rates of taxation except those imposed after 1886 to make u the remissions of 1882. It is evident, too, from the above state that the embarrassments of the Government of India due to exchange had been greatly exaggerated. In this connection, it

be well to draw attention to the erroneous way in which the Government of India's loss by exchange is commonly thought and talked of. The par value of a remittance is taken, and the difference between it and the rupee sum actually required is "loss of exchange," or the rupee cost of India's sterling remittances in a given year as contrasted with the rupee cost in a subsequent year and the difference is "increased loss by exchange." India has of course often increased its debt, and with increased debt, apart from exchange, larger payments have to be made. I notice that the permanent debt in England, which was £73,000,000 in 1886, has gone up to £113,000,000 in 1886, and the difference has been raised at an average probably under 1/4 per rupee. The gain on capital on such portions of the debt is quite equal to the proportionate loss on the annual interest, and enabled a smaller loan to construct a given railway or irrigation work. I notice that Sir J. Westland quotes the extra exchange loss on the railway debt as it stood in 1878 at Rx.1,000,000.

Stability of exchange has had very great importance attached to it, and the Secretary of State for India said lately:

"If we could ever establish a gold standard in India, fixing the 'stable exchange of the rupee at 16*d*., subject only to the fluctuations 'of trade, the advantage to India would be enormous. At the 'present moment the great industries of tea, and indigo, and jute, 'are carried on to a large extent by borrowed money, and in India 'money can only be borrowed at from 6 to 10 per cent. On the other 'hand, if you can secure anything like a stable exchange, you would 'have all the hoarded capital in this country waiting for employ-'ment, ready to be used in developing the resources of India."

But I submit there is in this utterance a great misapprehension of what is the real magnet that attracts capital. It is the reasonable prospect of profit which causes the flow of capital, and stability of exchange *per se* comes as a very minor factor. For instance, we have perfect stability of exchange with the West Indies, but no British capital—other than the Government doles—is going there; nor has the stable exchange with Australia, Newfoundland, or Fiji, sent British capital to these countries for some time past; on the other hand, the unstable exchange with Ceylon has not in the least checked the flow of capital to it. After examining witnesses of all classes, the Ceylon Currency Commission reported:

"The evidence we have is conclusive that that fall has not prevent-'ed the introduction of all necessary English capital, and it is stated 'that there is more capital offering for investment on reasonable 'terms than has ever been the case before. There is no practical or 'legal difficulty in securing the repayment of sterling loans in 'sterling value, and the loans of English capital, almost entirely 'made to Europeans, are so secured (see Appendix D, 13). Native 'borrowers and lenders deal entirely in rupees, and have been in 'this respect unaffected by the fluctuations of exchange."

Stable exchange, if other things remained equal, is an encouragement to the free movement of capital, but it is not a condition that is worth achieving at the cost of restricted currency and diminished prosperity. It would be a convenience to many, and tend to assure profit to those financial houses—private firms and public companies—who can borrow money at low rates in England and lend it at high rates in the East. The increase of local capital, to which the mints were so favourable, and the maintenance of whatever exchange conditions are found to be best for the producers, would seem preferable to driving the people to borrow from foreign lenders. It must always be remembered that many of those whose voices are heard loudest in expatiating on the advantages of a stable exchange, are, in reality, nothing for stable exchange *per se*, but regard it solely as a hopeful means towards securing their end, which is an artificial rate very much above the natural rate. Similarly, with those who, like myself, oppose it, it is not the abstract stable rate which is opposed, but the knowledge that behind it comes what at present would probably be a 50 or 60 per cent. artificial appreciation, and the possibility that this crushing handicap on Indian and Ceylon products in competition with those of the far East might be further increased. On the merits of the scheme, as a sound or unsound currency proposal, now before the Committee, I can only offer a mere amateur opinion, but it seems to be a reversal of the usually accepted duties of a Government to its people in currency matters; and a denial of a sufficiency for local trade requirements of the only legal tender, in order that it may acquire an outside scarcity value, is a sad come-down from the stand-point of the Indian Government as disclosed in a State paper bearing date October, 1876, in which it was laid down that to evade the consequences of lower exchange by raising the value of the standard unit of value would be "an especially vicious form of class taxation," and "an expedient quite inadmissible."

The present scheme is apparently that of Sir David Barbour, as laid down in his minute of 21st June, 1892, but it omits one essential of the scheme then propounded, viz., that "they (the rupees) must "be convertible into gold coins either without payment of premium "or on payment of a trifling premium whenever any person wishes "for gold coins in exchange for silver coins." If an effective gold standard can be introduced into an Empire like that of India in such a simple manner as is now suggested at almost no apparent cost at all, it is strange that other countries, Russia for instance, should have required many millions of gold to achieve the same end.

If achieved in India in the manner now suggested, the real cost would, I believe, soon be apparent in the strangulation of trade and diminution, if not extinction, of the favourable balance. I do not question that, as the Indian Government states, "redundancy is a relative term," but I submit that the standard should be the needs of the people, and not that necessary to give a coin a scarcity value in foreign eyes.

So far as the needs of commerce and the people go, there is far from being a redundancy even at present, before the destruction of the currency medium has commenced.

It is much more easy to criticise than to suggest, and I am unable to propose any alternative scheme which I consider satisfactory. The least unsatisfactory plan would be, I think, to re-open the mints with a rather heavy seignorage and the imposition of an import duty on silver to about the same amount per rupee. If the whole of the artificial value be placed on the seignorage, the temptations to illicit coining will remain very great, and, on the other hand, if it were all placed in an import duty, the value of silver in the country would be raised too much, and probably for some time to come there would be little outside silver imported, and consequently the revenue to Government would be small.

The unqualified re-opening of the mints is what one would like to be able to recommend, but although strongly opposed to their closure, I consider that a sudden drop in the rupee to bullion value, even allowing that silver would at once rise somewhat, would be too revolutionary, and it would leave the Government in a position of anxiety as regards their sterling payments. I may say, however, that I would prefer to see the mints re-opened without qualifications, and bear the cyclonic disturbance which would result, rather than continue the present wholly intolerable position.

THOS. NORTH CHRISTIE.

18*th June*, 1898.

STATEMENT BY H. P. HODGSON,
Planting Member of the Legislative Council of Madras.

MR. CHAIRMAN AND GENTLEMEN,—Before placing my views on the Currency question before you, I will premise my statements by explaining that I in no way claim to be an authority on a subject so intricate as that of International Currency, my only claims for being heard at all being, firstly, that I have the honour to represent the Planters of Southern India on the Legislative Council of Madras, and secondly, that I have had an experience extending over 25 years as a planter in India, during which time I have been a grower of produce for export, the value being paid me in gold, whilst the cost of production has been paid for in silver. As a planter, therefore, I maintain that one is brought into practical contact with the effect of the exchanges on agricultural industries. His labour being drawn entirely from the agricultural classes, the planter is brought into very close touch with them and their necessities, and their ways and means of livelihood.

In following the working of the currency policy of the Government of India since the adoption of the proposals of the Herschell Committee in 1893, which I have done with much interest as affecting my business, it has always occurred to me that the main questions as to the desirability of changing the currency from silver to gold, either with a gold currency or a gold standard, would some day have to be considered, and should have been considered before the somewhat hasty adoption of the Herschell scheme (as I may call it) instead of afterwards.

These main questions as they suggest themselves to me are:—

I. Did the trade and agricultural interests in India require, or call for, a change in currency?

II. Is a gold currency, or standard, the one best suited to the

conditions and requirements of India, the country which would have to pay for it?

III. If so, is the Herschell system, namely the system of raising the value of the rupee by creating a scarcity or retraction of the coinage with a view to raising it to a fixed point and then substituting a gold standard, the best one to introduce it?

IV. If so, is 16*d.* per rupee the best rate at which to fix the value?

V. If questions Nos. 1 and 2 are decided in the negative, what is now the best thing to do?

These questions appear to me to embrace the chief points on which the present enquiry into the future currency policy of India should turn, so far as the interests of agriculture aud commerce are concerned. I say advisedly the agricultural and commercial interests apart from the interests and liabilities of the Government, for I maintain that the currency should be fixed for the welfare of the people, and not for the necessities of the Government, the revenues which the latter have to control being entirely dependent upon the prosperity of the former.

This principle was admitted by the Government of India in a letter to the Secretary of State for India, dated Simla, 13th October, 1876, No. 368, Financial, in the following distinct terms:—

"It is especially important to observe that the State would have no right to change or enhance the standard unit of value, either for the benefit of the public revenues or of any class or classes of the community, however influential or valuable, on any ground whatever other than that the relations of the whole community were so disturbed by the alteration of the value of the standard that the common weal required its readjustment."

I. Did the trade and agricultural interests in India require or call for a change in currency?

In considering this question, it will be necessary to go back to a time previous to the appointment of the Herschell Committee to see how the alteration in the views of Government in this respect came about, and from whence came the first agitation for a change in the currency. Such a question is, I think, legitimate at this stage of the enquiry when the result of five years' working of the Herschell scheme has brought down universal condemnation from all classes whose existence depends upon a sound currency policy, and has left the present Government of India alone in supporting it. I think it will be admitted that the first real agitation for a remedy in the steady fall in exchange was made by the Government officials in India, who (doubtless with reason) complained that they were heavy losers by it, and ought to be compensated. This agitation was continuous and widespread, and I think that to it may be attributed the first step towards the consideration of a fixed rupee at an artificial value.

The next move was with the Government of India (coming from the same class) who saw in a fixed rupee, artificially raised in value, a means of meeting the heavy sterling liabilities yearly increasing by the falling rupee. Eventually no doubt some representatives of the banking and commercial interests joined in advocating a trial of the proposed scheme, caught perhaps with the idea of a fixed rupee facilitating business and minimising the risks. The producers from the first declaimed against the Herschell scheme, on the ground that an artificial rupee would place them at a disadvantage with other silver countries having a natural exchange.

Thus I would trace the origin of the Herschell Committee to the members of the Indian Government, supported afterwards by some of the banking and commercial representatives, but always opposed by the representatives of the producers. I think this retrospect may be excused when it is considered in connection with the present situation, which is, that the members of the present Indian Government continue to approve the working of the Herschell scheme and advocate an extension of its principles, while the whole of the banking and commercial representatives have unanimously declared that the present position of the money market in India (the direct result of the working of this scheme) is intolerable, and fraught with the greatest danger to their prosperity, and the agricultural representatives of India, joined by Ceylon, remain staunch to their original contentions, fortified by the sad experience of the trial, and declare that a continuation of the present currency policy must involve them in extinction.

II. Is a gold currency or standard the one best suited to the conditions and requirements of India, the country which would have to pay for it?

To this, as far as my experience goes, I should certainly reply in the negative, for the following reasons:—(*a*) Because unles urgently called for by the unanimous voice of the banking, co cial, agricultural and industrial representatives of the people, c (which might be termed volcanic) in the old-established coina country, especially a country with a vast population of uned and ignorant people of an alien race, may be attended with dangers to the commerce, industries, and agricultural interes to that settled feeling of confidence which it is so necess maintain in a country like England. (*b*) That the adoption of standard would necessitate the fixing of the value of the rupee, would still be the medium of exchange and payment in Indi would place all producers permanently at the disadvantage o we now complain, amounting to the difference between India' value and the natural value of silver, with all countries using at a natural exchange and with which our goods come into tition.

But although a gold standard might be established without currency, the want of a bullion backing would soon be felt, again quote from a previous utterance of the Government of such a state of things could not be tolerated permanentl should an enhanced standard be established, it would be imp to indefinitely escape the obligation to introduce an en currency.

If a gold currency could be established, which I believe beyond the resources of the Government of India, it could o maintained with difficulty, and at great expense, as the absorption by hoarding (which would then be done in gold ins in silver as now) would be so great as to materially affect the sary volume of floating coinage.

Again, to establish a gold currency in India would only t further appreciate gold, and it is more than probable that India is suffering from now is appreciation of gold rathe depreciation of silver. This would tend to still further wid difference between the gold legal tender coin, which would chi used in exchanges out of the country, and to depreciate the legal tender, which would continue to be the one used by the to the loss of the latter.

III. If so, is the Herschell system, *i.e.*, the system of raisi rupee by creating a scarcity or retraction of the coinage with to raising it to a fixed point and then substituting a gold sta the best one for introducing it?

This question brings up one of the most important indict against the Herschell scheme, and one in which all classes agree.

It is found that through the contraction of the currency, five years' application of the Herschell scheme has brought money has become so scarce as to practically interfere with bu and the price of money had become so high that for some r before I left India, in May of this year, bank rates were nor 12 to 15 per cent., but practically money could not be got than 15 to 16 per cent. on Government paper or gold bars. speaking of commercial money, but money for agricultural pu was not to be had at any price. Some of the members Commission must be aware that the whole of the agric production of India is carried on under a system of adv However objectionable such a system may be in principle, it it is older than the British rule, and will not be altered. field and almost every growing crop has money advanced u the rates of interest on such loans always being high, and from 20 to 73 per cent., the latter being a common rate of i for loans for short periods on growing crops. The ryot mus the money usually to buy grain to show is fields, and unless it the ground remains fallow. I know that of late the ra interest have been raised by the native money-lenders, and in cases the loans are refused, either case bringing povert desolation to the ryot. This state of affairs is due to the s and dearness of money. The native money-lenders in many get their money from the banks, on security of Government or produce, and lend it out in small sums. These men cann money from the banks now as they could, and the result in co time will be a deplorable loss to the native agriculturalist.

Cheap money, and plenty of it, is what makes the prospe any country, but the Herschell scheme seeks to raise the va the medium of exchange, the rupee, by creating a scarcity of which means poverty in plain English; in fact, without such city, the artificial value cannot be maintained under this sche

The principle is suicidal to the prosperity of the people, and

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Do. do. do. 2½ „ „ „ ...			
Pick Axes, 6½ lbs. (well steeled) ... ... „ ...	16	8	0
Bill Hooks, (Barcutties) 12″ blade, bright steel „ ...	18	0	0
Do. Kentish, with back, steel, 2¼ lbs. wt. „ ...			
Bushel Measures (Galvanized), Imperial Stnd. ...each ...	15	0	0
Buckets (Galvanized), various sizes ... from per doz. ...	16	8	0
Watering Cans, (Galvanized) "Nonsuch," 2 gals. each...	4	0	0
Do. do. do. 2½ „ ...	4	8	0
Steel Digging Forks. *Steel strapped all along handle.*			
4 & 3 pronged per doz. Rs. 39-0-0 &	33	0	0
Grass Knives, socket handle, steel ... per doz. ...	12	12	0
Hammers, 6, 7, & 8 lbs. ... ... per lb. ...	0	6	0
Handles, Pickaxe, 3 ft. long (English Ash) ... each ...	0	12	0
Do. 30″ long 3¾″ circ. (do) ... „ ...	0	6	0
Do. 16″ „ 3″ „ (do) ... „ ...	0	4	0
Do. Digging Fork ... ... „ ...	0	14	0
Lining Ropes, abt. 250 feet ... ... „ ...	8	12	0
Mamooties, Steel 10″x 8″ or 9″x 7″ abt. 4 lbs. wt. per doz. ...	12	12	0
Do. Iron 10½ x 8½ or 9½ x 8 abt. 4 lbs. wt. „ ...	7	8	0
Quintanies, Steel 15″ × 6,″ 5½ lbs. weight ... „ ...	18	0	0
Do. 9½″ x 5,″ 3¼ „ „ ... „ ...			
Manure Pans, (Galvd.) 7″ deep x 18″ top x 10″ bottom „ ...	23	4	0
Pitting Bars (Alavangoes), well-steeled points, 3″ spade end, 45″ long, 9 lbs. wt., „ ...	16	8	0
Pruning Knives, English make, best steel, 4″ blade „ ...	9	0	0
Do. Saws, do. do. 14″ „ ...	18	0	0
Seamless Bags (for coffee transport to coast) 42″ x 20″ „ ...	9	12	0
Shovels, round nose, T handle ... ... „ ...	12	12	0
Tea Transplanting Spades, steel, sharp edge ... each ...			
Tea Sieves, brass No. 6, 8, 9, 10, 12 mesh „ ...	6	0	0
Do. do. bottoms do. „ ...	3	8	0

TEA REQUISITES—FOR PACKING.

CHESTS—MADE TO ORDER. *Deld. at Mettapollium, Palghat, Calicut.*

Full Chests 24 x 19 x 19 (outside) ½ in. planks each ...	1	1	0
Half do 16 x 16 x 16 („) do „ ...	0	13	3
Quarter do 14 x 12 x 10 („) ⅜ do „ ...	0	9	3

Any other dimensions at proportionate prices.

LEAD—BEST INCORRODIBLE. *Any other sizes obtained to order.*

127 sheets 37″ x 22″ ... ... per case of 2 cwt.	32	0	0
or 218 „ 25″ x 19″ ... ... „ ...	32	0	0
„ 40 „ 84″ x 22″ for sides } „ ...	30	0	0
„ 80 „ 21″ x 16″ „ tops and bottoms }			
„ 72 „ 65″ x 19″ „ sides } „ ...	30	0	0
„ 144 „ 14″ x 14″ „ tops and bottoms }			
Solder (Sticks) per case of 1 cwt. Rs. 50, or per lb. ...	0	8	0
Soldering Fluid ... ... per bottle ...	2	0	0
Hoop Steel ½″ (abt. 3,000 feet to the cwt.)... per cwt. ...	15	0	0

COFFEE PULPERS—*To order only. One month required for delivery.* For Arabica. For Liberian. Agents for:—MESSRS. WALKER SONS & CO., LD. *Price list and illustrated catalogue sent on application.*	Rs.	A.	P.
Copper Punched Cylinder cover 4′ x 2′ ... each ...	25	0	0
Do. Disc cover ... ... „ ...	9	0	0
Do. do. for Liberian ... „ ...	12	8	0

COIR MATTING—In rolls of 60 feet long x 3 feet wide.

Estate, Double, (coffee drying, etc.) Nos. 1 and 2, Rs. 2-8 &	2	4	0
Ordinary Bungalow Twill	7	0	0
Fine Machine-made Yarn	12	8	0
Superior Yarn	15	0	0

Coloured stripes to order. Samples sent on application.

IRON—GALVANIZED.

Continuous Iron. For roofing, etc. In rolls of 100 ft. x 2 ft. 28 G. (per ft., 7 as.) per roll ...			
Corrugated Iron sheets 24 G. 2 ft. wide (English) Lengths 5, 6, 7, 8, 9, 10 ft. } per cwt.... Approx. weight 14, 16, 19, 22, 24, 27 lbs. }	10	0	0
Iron Ridging, 6 ft. x 6 inch lap. ... per length ...	1	8	0
Bolts and Nuts, ¼″ x ¾″ ... ... per gross ...	1	14	0
Rivets (*abt. 64 to the lb.*) ... ... per lb. ...	0	4	6
Washers, Iron (*abt. 70 to the lb.*) ... ... „ ...	0	4	6
Do. Lead (*abt. 50 to the lb.*) ... ... „ ...	0	6	0
Screws 2½ in. (*abt. 28 to the lb.*) ... ... „ ...	0	7	0
Lead headed nails 2½ in. (*abt. 20 to the lb.*) „ ...	0	6	0

NAILS—

Cut Rose Nails 1 in. (*abt. 500 to the lb.*) ... per lb. ...	0	3	0
Do. 2½ in. („ 90 „) ... „ ...	0	2	3

Wire Nails, French.

	1″	1½″	2″	2½″	3″	4″
℔ 1 cwt. keg Rs.	13/12	11/8	11/	10/8	10/	9/8
℔ pound annas	2¾	2½	2¼	2¼	2	1¾
Nails ℔ lb. (*abt.*)	400	200	160	100	80	35

Triangular Barbed Wire Nails.

	1″	1½″	2″	2½″	3″	4″
℔ 1 cwt. keg Rs.	14/	12/	11/	10/8	10/	9/8
℔ pound annas	2¾	2½	2¼	2¼	2	1¾
Nails ℔ lb. (*abt.*)	500	290	160	110	75	40

ASPHALTE ... ... per ton ...	69	0	0
PORTLAND CEMENT—John Bazely White and Bros. "Whites" Best ℔ barrel of abt. 375 lbs. net ...	11	12	0
Sole Agents for S. Canara, Coorg, Malabar, Coimbatore, Travancore.			
COAL TAR, Best ℔ barrel of abt. 4 cwts. gross ...	20	0	0
WINDOW GLASS—per case of 100 sq. ft. (all sound) ... 12×10, 14×12, 16×14, 18×14, 20×16, 22×18, 24×20, 28×24, 36×24 and 36×30.	15	0	0

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MANURES.

Fish Guano. Steamed Bone Meal. Poonacs:—Castor, Mowra, Hoongay. **Saltpetre, Crude and Refined** (Nitrate of Potash.) **Nitrate of Soda. Sulphate of Ammonia. Sulphate of Potash. Muriate of Potash. Superphosphates. Phosphate Powder. Kainits Salts.**

Mixtures can be made in any proportion without extra charge. **Packing** can be done to suit transport by bullocks, etc.

Prices will be furnished on application for delivery either at our Karaparumba Works, Calicut, the Calicut Railway Station, Palghat, Mettapollium, Salem, or at our godowns in Cochin, Tellicherry, Mangalore and other places.

Quotations will be obtained and orders booked for any Manures not kept in stock.

F.r.m.

3

not be permitted for a moment in any country where they are sufficiently educated and advanced to have a real voice in the government and administration of their country. In fact, the aim and object of the Herschell scheme is to bring about the balance of the revenue by a form of taxation which is condemned in no measured terms in a letter of the Government of India of the 13th of October, 1876, which I have before alluded to and will again quote from :—

"An addition to the liabilities of India arising from an increase in the value of gold, so far as it affects the State, can be legitimately met only by an equivalent improvement of the account of revenue and ordinary expenditure, *i.e.*, either by an increase in the revenue or a decrease in the ordinary expenditure : there is no way of avoiding this necessity. To meet any obligation thus caused by raising the value of our standard unit of value would, we conceive, be an especially vicious form of class-taxation ; for the burden of it (while virtually raising the demand of Government on those who reap the products of the soil) would fall exclusively upon the poor and indebted, the rich creditor class benefiting like the State, at the expense of the rest. We should consider this expedient inadmissible." Here is rightly shown how such a means of the standard unit of value is a vicious form of class-ta directly falling upon the agricultural classes of India.

IV. If so, is 16*d.* per rupee the best rate at which to fix the

To this I should decidedly answer, no. The difference b the actual and the artificial value of the rupee is far too wide t of profitable competition with other silver-using countrie causes too heavy a loss to the producer. That a high rate of ex would be injurious to India is admitted by the Government o in a Financial despatch to Her Majesty's Secretary of State fo No. 261, dated 16th September, 1897, from which the follow extracts :—

"In any case we are of opinion that the true interests o demand that any measure for attaining stability in the r exchange between gold and silver should be based upon a ra greatly differing from 16*d.* per rupee ; and that any measure would raise the rupee materially higher than that level i great danger for which we see no adequate compensations.

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w.

One of the factors in fixing the demand of Government for revenue is the price of agricultural produce; if that price falls away the heavier the demand becomes, and if it falls away materially the relation between the price the ryot can obtain for his produce and the assessment he has to meet may be so seriously altered as to affect the agricultural prosperity of large tracts of country. . . . So also as regards our railway revenues which are now so important a portion of our income; they are in part directly dependent upon the activity of the export trade, and a blow struck at that trade will be felt by us immediately and directly through our railway account."

So here the principle is admitted that, India being a country competing in a large proportion of her produce with silver-using countries, having a natural, which means a lower exchange, would suffer from a high exchange. But the Government of India fixes, without any reason for the violation of the admitted principle, a rate of exchange of 1/4, or a difference of, say, 6*d.* between the actual and artificial value they propose to fix as a rate which will be of advantage to the country! Surely there is something inconsistent in such an unexplained contradiction. The only possible explanation that I can discover is that, at 16*d.* per rupee, the Government can balance their budget without trouble or anxiety. If this is the reason, I can only say that the principle involved is one that I cannot commend. What the Government of India practically says is: We want money by tinkering with the coinage; we can get it in a form of taxation which will not generally be recognised as such. We will arrange the exchange so that for £1's worth of produce no one shall receive more than Rs.15, although its present rupee value may be 18 or 20 rupees.

By this means, last year, a sum of no less than Rs.18,70,300 was made under the item expenditure, being the difference between the budget estimate and revised estimates under this head for 1897-98; and this was admittedly due, to quote Sir James Westland's own words, "mostly by reason of improvement in exchange."

This profit was made out of the bills purchased by exporters to cover exported produce, and comes really out of the pockets of the producers.

To justify this very manifest loss to the producer, the Government of India attempts to prove that real trade is only an exchange of goods; that the producer exports, say, £1's worth of rice or tea, and in return receive £1's worth of cotton goods or iron-cooking pots. But this is theory, and depends for any value in the argument on an even balance between exports and imports. In practice the producer sends home £1's worth of rice or tea, and does not want the £1's worth of cotton goods or cooking pots, nor has he that amount to spend on them, for in the first place he has to pay for the cost of producing his exported articles, and, secondly, may prefer to spend his sale-proceeds on articles manufactured in the country. Whether, therefore, he gets Rs.15, the artificial value, or Rs.20, the real value, makes a very material difference to him. As a matter of fact the millions of agriculturalists in India have little or no occasion to purchase imported goods, and for goods grown or manufactured in the country the purchasing power of the rupee is not affected by exchange.

I submit, therefore, in the interests of the people of India, and of producers in particular, that if it is decided to fix the value of the rupee in order to establish a gold currency or standard, it should be done something near the true value of silver.

V. If questions I. and II. are decided in the negative, what is now the best thing to do?

Herein arises a question on which I will speak with much diffidence. In the interests of the producers alone—and it must be remembered that the population of India is of this class—I have no hesitation in saying that the gradual re-opening of the mints until the rupee reaches its real silver value would produce the greatest measure of prosperity, as it would enable us to compete on even terms with other countries having a silver currency, and would ensure to us the highest price for our exports in the coin of the country in which we work, and in which coin we have to pay the whole cost of production. It would take too long, and would perhaps be out of place here, were I to go into the average percentages of profit, after paying cost of production, on certain articles grown for export, but I may say, without fear of contradiction, that the margin is too often a very small one, and in some cases the balance is the other way, and the sale-proceeds do not cover the cost. When all these costs have to be paid in silver, it does not require much explaining to show how important is the amount of silver obtained in return for the produce sold. If the re-opening of the mints is decided against and a gold standard, or coinage, advocated, I would suggest for consideration that the value of the rupee should be fixed at a much lower rate than that proposed by the Government of India. This would be a relief to the producer only second in degree to the last proposal.

I recognise the difficulties of the Government of India in meeting their sterling liabilities, and that means must be forthcoming to enable the Government to meet them, and also to provide funds for the vigorous prosecution of works for the opening up and development of the country. But after reading the statement made by Sir James Westland on presenting the last Imperial Budget, I cannot believe that there should be any very great difficulty in arranging the revenue and expenditure. The Finance Minister spoke with pride of a record for the past twenty years of finance, unequalled in the world except by the United Kingdom, and at the same time his prophecies for the future were of the most optimistic character. If further taxation, however, should be necessary, let it be a direct tax, say, on exports or imports, but let it be a legitimate tax of which the extent can be definitely understood by all, and not a tax on money, which is the first necessity of progress and prosperous trade.

Before closing my remarks, there are two points on which I would ask leave to touch briefly. First, the effect that the sudden closing of the mints to free coinage of silver has had upon the savings of the poorer classes throughout India. It has been the custom, among the poor agricultural classes especially, for ages past, to put their small savings into silver ornaments made out of rupee silver; this having been done both for safety, as they are carried about on the persons of the members of the family, and also because such ornaments were always available as negotiable securities on which money could be raised. So long as the mints were open, the value of these ornaments was gauged by their weight against rupees, into which they were readily convertible. By the closing of the mints, the rupee value of these savings was at one blow heavily cut down. In other words, the face value of the rupee is now above its bullion value, and the uncoined hoards of the natives have now at least 20 per cent. in purchasing power compared with rupees. Imagine how disastrous this must be to them in times of famine. If an account of the actual loss thus occasioned could be made up, the figures would be startling, and would, when the cause is realised by the sufferers, which is not yet the case, be a very just reason for discontent among the millions of poor affected by it.

The second point I would wish to make myself clear upon is that, in objectiug to the artificial enhancement in the value of the rupee, we are not actuated by a desire to make what the Government of India describes in a despatch replying to a letter from our Associations on the subject as "a temporary and unfair gain from depreciation of the standard." I may say that we claim to look further ahead than such a shortsighted policy would imply.

We do not fear a high exchange so long as it is a natural exchange which would affect all silver countries competing with our products. What we do fear is the strangling of our industries by other countries working with a lower natural exchange, enabling them to place their products in the markets of the world at a price which we cannot attain with the bounty we have to give them, and it is to us a certainty that this will be the end unless we get relief.

Industries other than agricultural suffer in India by high exchange, whenever the cost of producing the article paid for in silver and the product is sold for gold. In support of this statement I would illustrate the gold mining industry in Mysore, which provides a valuable instance of how the cost of production in rupees is affected by a high exchange, as the product of the mines being gold is unaffected by fluctuation in value.

The expenditure in India affected by exchange amounts to about ten millions of rupees per annum; taking the intrinsic value of the rupee to be 10*d.*, this would amount to £416,666, whereas the amount required to buy these rupees at the present artificial value of 1/4 is £666,666, or a difference of 250,000 per annum. When I say that this sum represents about 10 per cent. on the nominal capital of the companies paying it, it may be understood what the loss is to shareholders.

The Mining Board of the Colar Fielde is of itself about to lay a statement of the foregoing facts before your Commission, but in case such written evidence may not be accepted, or should arrive too late, I ask leave, as a representative of some of the companies, to embody the information in my statement.

Finally, I submit that India flourished in its trade and in the expansion of its industries with a silver currency, and with a low and falling exchange, and although the latter may have caused some

loss to a few, it brought prosperity and riches to the people, directly reflected in the brilliant financial retrospect of the last twenty years by Sir James Westland, previously referred to. Capital flowed into the country under the old system, and if there is now a stagnation of trade and a general withdrawal of capital from the country, it is due to the currency policy of the Government of India, whereby a scarcity of money has been created through the closing of the mints, and by the unhealthy enhancement of the rupee to an artificial value, causing panic to investors and bringing ruin to producers.

(Signed) H. PERCIVAL HODGSON.

INTERVIEW WITH MR. LINDSAY.

THE Calcutta correspondent of the *Pioneer* telegraphs:—I have just had a long interview with Mr. A. M. Lindsay of the Bank of Bengal, who has just returned from England after giving evidence before the Currency Commission. As the Blue Book containing the evidence given before the Commission is published in London this evening, Mr. Lindsay saw no objection to expressing his views as to the probable outcome of the Currency Commission.

Mr. Lindsay prefaced his remarks by saying that his opinion was formed solely on the enquiries made in the course of his own examination before the Commission, and may be modified when he sees the result of the evidence given by others.

Questioned first as to the possibility of bimetallism being recommended by the Currency Committee, Mr. Lindsay said: "I think it will be found that bimetallism is no longer within the range of practical politics."

"And the proposal to reopen the Mints?"

"The reopening of the Mints also, I venture to think, may be regarded as outside the sphere of practical politics, so far as the opinion of the Currency Committee is concerned."

"What support do you imagine the Government proposals are likely to meet with?"

"Sir James Westland's scheme has few or no supporters in the Committee. The idea that a gold currency can be established in India at a small expense is held only by those who have little or no experience of the conditions of Indian trade and Indian banking."

"The Government scheme meeting with no favour, and the opening of the Mints and bimetallism being both outside the pale of probable discussion, in what direction do you consider the Currency Committee is likely to carry on its deliberation?"

"There are several important points at issue—(1) In the first place there is the question whether convertibility should be adopted at once or whether, in order to give time for more mature deliberation, matters should be allowed to remain as they are for a little longer; the stringency in the money market being meanwhile relieved by temporary measures, such as increasing the Government balance with the Presidency banks.

"(2) If convertibility is adopted, ought the responsibility of the step to rest exclusively on the shoulders of the Government of India, or ought the Imperial Government to lighten the burden and increase the public confidence by giving an Imperial guarantee that convertibility will be permanent and unfailing?

"(3) What ought to be the margin (favourable to the Government) between the rate of issue and the rate of conversion? Should the margin be 2 per cent. or less?

"(4) Should the par value (or convertible value) of the rupee be fixed at 1*s.* 4*d.*, or would it be more advantageous on the whole to fix the rate at 1*s.* 3*d.*?

"(5) In the event of the Government's Gold Conversion Fund becoming exhausted by reason of a heavy demand for sovereigns in exchange for rupees, is it desirable to melt down rupees and sell the silver to supply the deficit of sovereigns?

"(6) In the event of exchange dropping to the conversion rate, should the Home charges be paid out of the Gold Conversion Fund, or should Council Bills continue to be sold on all occasions to the highest bidder?

"These six points," added Mr. Lindsay, "are of immense importance, and I am inclined to think that they will occupy a prominent place in the deliberations of the Currency Committee."

I pointed out to Mr. Lindsay that there was still the question of indefinite liability which must necessarily be incurred in connection with any scheme of free and unrestricted conversion.

"The argument of indefinite liability," he replied, "has no force, for the simple reason that it is now recognised that a still heavier and an equally indefinite liability is incurred in the absence of convertibility, and a similar indefinite liability would also ha borne if a gold currency were introduced."

This concluded the interview, and as I was preparing to t departure, Mr. Lindsay expressed his strong belief that the C Committee have attached and will continue to attach consi importance to the views of the Press in India and of the Chambers of Commerce on the points under discussion. "I reason," he added, "I earnestly hope that when the Blu arrives, the reports of the evidence contained in it will be fre fully discussed."

WINDING UP THE WATCH.

IT is my custom to wind my watch every night at ten. W go to bed I lay the watch on a little table at the head of t Should I chance to wake in the night I always hear the clea tinct ticking. But one night recently I awoke and heard no from my faithful friend. "What!" said I, "is it possible I fo wind it?" To light the candle and put the watch to my ea but a minute. Going still? Yes, going still; but very feeb faintly. I wound it at once, of course. Then it spoke out arousing echoes in the stillness, and to its monotonous r dropped off to sleep.

That other watch—the watch in your breast. Ah! it doesn let that run down, for, unlike the pocket watches, when *it* s stops, as the children say, "for keeps," for good and all.

Therefore Mrs. Susan Gladdish's statement that her "hea to stop beating" cannot be accepted literally. She doesn't n so. She means that at times it beats so feebly and faintly she hardly feel it. "It alarmed her very much," she says. No But what ailed it?

"In July, 1892," she says, "I began to feel ill. At first I fe and weak, without life or energy. I had a bad taste in the spitting up thick phlegm and a sour, frothy fluid. My appeti bad, and after eating I had a sense of pain and weight at the I had also frequent attacks of dizziness, and had I not taken something I should have fallen to the ground.

"As time passed I grew weaker and weaker until I could walk across the floor. For six months I was confined to the The doctor said my heart was exceptionally weak. He ga medicines and told me what outward applications to make wh attacks came on. They did no good though.

"I was in this condition sixteen months, when, in Novem last year (1893), my brother told me about the benefit he had re from Mother Seigel's Curative Syrup during an illness he ha through. This made me hope the Syrup might do me good had done him. I got a bottle from Mr. Wiseman, Grocer, Street, and after taking it for a week I felt relieved. By the had taken three bottles I was cured, and have had no return trouble. Had I known of this medicine sooner I should have spared a deal of suffering. (Signed) Mrs. Susan Gladdish, 7, down Place, Perry Street, Gravesend, January 10th, 1894."

We could quote the words of several other persons, mostly w who have passed through an experience virtually identical wit of Mrs. Gladdish, but it is not necessary, as the comment case will apply to theirs.

One point at a time, then. The heart is no weakling, no flower that must be constantly nursed and tended. It is a powerful muscle, and does more work, far and away, than any organ in the body. All the others stop and rest betimes. heart never does. It hammers away, year in and year out, da night, work-days, holidays, and Sundays. It is kept going b nerves, the nerves are kept going by the blood, and the bl merely digested food from the stomach. There's the connecti

Mrs. Gladdish was afflicted with indigestion and dyspepsia. poisoned and thinned her blood, starved her nerves, and mad nerves unable to give the usual strong impulse to the heart. the heart beat feebly; the brain, insufficiently supplied with caused the dizziness, and the *general* lack of nourishment t whole body caused the weakness, pain, and loss of flesh. The went to the bottom of the difficulty, expelled the poison fro system, and restored the digestive powers. The food then gave new vigour to the nerves, and the nerves set the heart at vigorously, and on full time.

In other words, Seigel's Curative Syrup wound up the Please remember this simple yet wonderful process.

MARKET REPORT.

COFFEE.

Messrs. R. J. Rouse & Co's Weekly Coffee Report (*August* 12, 1898) says :—Moderate supplies were offered at auction consisting chiefly of Costa Rica, Guatemala, Columbian and other Central American descriptions.

Costa Rica sold steadily for lower qualities but at full prices for colory kinds. Guatemala and Columbian part sold at a slight advance and remainder held for higher rates.

Only 76 bags East India were catalogued, a few lots of undesirable qualities sold at irregular rates.

Futures. On moderate receipts and firm Brazilian markets prices advanced about 9d.

Messrs. Wm. Jas. and Hy. Thompson's Report of the Colonial Markets for the Fortnight ending August 10*th*, 1898, says :—Bank rate 2½ %. Bombay Exchange closes at 1s. 3⅞d. Brazil Exchange 7 5/16d. Rupee paper 3½ % 62⅞. Silver 27 5/16d. per oz.

The moderate quantities offered at auctions since the re-opening of the market last Thursday have met with a good demand, and we have to report an advance of 1s. to 2s. per cwt. for most kinds, especially the better grades of Columbian. Good Plantation Ceylon continues to realize extreme values. Brazil markets are firmer.

At the Rotterdam sale held yesterday, 22,154 bags 38 cases were offered and sold at an irregular decline of ½ to 1 c. on valuations, good ordinary Java realizing 37¼c., against 35 c. at the June Sale.

According to Messrs. During and Zoon, the European stocks on 1st instant showed the small decrease of 300 tons, whilst the total visible supply was 13,510 tons larger, the respective figures being 207,400 tons, against 207,700 tons on the 1st July, and 338,230 tons against 327,420 tons on the 1st July.

Futures have been more active, and close steady at an advance of 9d. to 1s. 3d. per cwt., viz. :—Good average Santos in Havre, September delivery, fcs. 37.75, in Hamburg pf. 31, and No. 7 low ordinary Rio in New York $5.70.

London advices dated 12th August, 1898, state that coffee continues to meet with a better demand, nearly all the business being in Central American descriptions, with which the market is almost exclusively supplied. Fine coloury qualities are very scarce and are eagerly competed for at higher rates. "Futures" are about 1s. dearer; good average Santos is quoted at 29s. 6d. for August, 29s. 9d. September, 30s. October, and 30s. March.

The improved demand noticed last week has continued, and nearly everything offered at auction has found buyers at good prices. East India and Mocha, however, continue neglected. The small supplies of Plantation Ceylon sold with competition at extreme rates. Jamaica slow of sale. Nearly all the business effected has been in Central American descriptions, with which the market is almost exclusively supplied; fine colory grades, being scarce, are eagerly competed for, and realise fully 2s. advance, dull qualities also improving 1s. "Futures" have been firm, and prices close at an advance of about 1s. per cwt. for the week, viz. :—

London	...Santos	...September delivery	...	30s. 0d.
New York	...No. 7 Rio	... „ „	...	5·65 cents.
Hamburg	...Santos	... „ „	...	30¾ pf.
Havre	...Santos	... „ „	...	37½ francs.
Holland	...Good ordinary Java	...	...	37¼ cents.

Imports Deliveries and Stock of Coffee in London are as follows :—

		Stock.		Imports.	
		1898.	1897.	1898.	1897.
West India	... tons	537	417	1,563	761
Ceylon	... „	100	122	204	322
East India	... „	2,276	2,431	5,378	4,955
Mocha	... „	536	452	583	475
Brazil	... „	3,204	2,106	2,345	1,305
Other Foreign	... „	12,819	7,612	24,506	19,018
Total	...	19,472	13,140	34,579	26,836

		Home Consumption.		Export.	
		1898.	1897.	1898.	1897.
West India	... tons	248	225	1,115	474
Ceylon	... „	97	107	117	219
East India	... „	1,678	1,462	2,530	1,848
Mocha	... „	447	333	98	148
Brazil	... „	637	769	1,475	1,666
Other Foreign	... „	5,844	6,006	10,514	8,492
Total	...	8,951	8,902	15,849	12,847

The preceding figures exhibit—

In the imports an increase this year of 7,743 tons.
Home Consumption an increase of 49 „
Export an increase of ... 3,002 „
Stock an increase of ... 6,332 „

Auctions this week have passed off as under :—

CEYLON.—*Plantation.*—25 casks 7 tierces 2 barrels 2 bags sold—triage 36s., smalls 81s., to 90s., middling 104s., good middling and gray bold 110s. to 112s. 6d., pea-berry 110s.

EAST INDIA.—77 bags partly sold—*Neilgherry*, triage 32s., smalls 41s., low middling dull 60s. 6d., faded bold 82s.

WYNAAD.—*Liberian.*—17 bags bought in.

AFRICAN.—*Liberian.*—57 bags mostly sold, bold yellowish 27s. to 28s., very low Old Calabar 10s.

MOCHA.—160 packages withdrawn.

BRAZIL.—296 bags Santos bought in. Of 69 bags Rio a part sold at 31s. per cwt. quay terms.

Receipts in Rio and Santos.

	1898-9.	1897-8.	1896-7.	1895-6.
Aug. 10—	Bags.	Bags.	Bags.	Bags.
Rio ...	... 19,000	25,000	19,000	15,000
Santos	... 25,000	38,000	30,000	17,000
Total 5 days				
Rio ...	... 60,000	97,000	61,000	69,000
Santos	... 102,000	133,000	101,000	51,000
	162,000	230,000	162,000	120,000
Since July 1				
Rio ...	... 359,000	560,000	477,000	300,000
Santos	... 720,000	933,000	713,000	388,000
Total	...1,079,000	1,493,000	1,190,000	688,000
Crop ...	... —	10,461,000	8,680,000	5,489,000

Exchange 7 5/16d. previous day 7 5/16d.

Havre, August 11.—Market quiet. Santos good average September opened at 38f and closed at 37½f, December opened at 38¾f and closed at 38½f.

Hamburg, August 11.—Good average Santos September opened at 30m. and closed at 30¾m.

New York, August 11.—Closing prices of No. 7 Rio were as follow :—

	Aug.	Sept.	Oct.	Nov.	Dec.
Aug. 11 ...	5.60	5.60	5.65	5.65	5.85
Aug. 10 ...	5.70	5.75	5.75	5.80	5·95

Auctions on 12*th ultimo.*—Auctions to-day embraced 4 tierces 36 casks 12 barrels 1 bag Plantation Ceylon, 302 bags East India, 63 bags Liberian, 1,625 bags Costa Rica, 521 bags New Granada, 594 bags Colombian, 107 bags Porto Rico, and 519 bags Savanilla. The market was steady to-day, and nearly all offered sold at previous prices.

PEPPER.

Advices of the same date state that Singapore Black has been sold on the spot at 4 25/32d. for fair; parcels near at hand have been done at 4 15/16d, July, September, and August-Oct. shipment at 5d, Sept.-Nov. at 5 3/16d, and October-December and November-January at 5¼d. Tellicherry, Sept.-Nov. shipment has been sold at 4 11/16d. Of White, sales of Singapore Aug.-Oct. shipment have been made at 8⅞d. (closing at 8¾d); Penang, Sept.-Nov. and Oct.-Dec. at 8 1/16d. down to 8d, and Dec.-Feb. up to 8¼d, closing at 8 1/16d. sellers. On the closing day of the mail :—

Black.—A firm market and dearer. Singapore Sept.-Nov. shipment sold at 5 1/16d. 100 tons sold.

25 tons Tellicherry, Aug.-Oct. shipment, sold at 4 11/16d. c.i.f. delivered weights. The price from first hand sellers is 4⅞d. c.i.f. Singapore October delivery sold at 4 15/16d.

1,000 bags Singapore on the spot sold at 4 13/16d. cash less interest and further buyers.

TEA.

Messrs. Gow, Wilson and Stanton's Indian, Ceylon, and Java Tea Report, dated August 5*th*, 1898, says :—

QUANTITY BROUGHT TO AUCTION IN LONDON FROM 1ST JUNE TO DATE.

	Indian.	Ceylon.	Java.
1898-1899...	89,274 packages.	210,651 packages.	6,612 packages.
1897-1898...	89,626 „	238,857 „	8,646 „

4,138 *pkgs.* INDIAN
— „ CEYLON
711 „ JAVA
} Total 4,849 packages were offered in public auction this week.

Deliveries of Indian Tea during July were fairly satisfactory, showing an increase of about half a million pounds over last year. On the other hand the deliveries of Ceylon tea show a falling off of about one million

pounds. We give below a table showing the average prices obtained each week for the Indian and Ceylon teas since the commencement of 1894.

Indian Averages.

1894.		1895.		1896.		1897.		1898.	
Week ending	Indian.	Week ending	Indian.	Week ending	Indian.	Week ending	Indian.	Week ending	Indian.
Jan. 5...	8 d.	Jan. 4...	10¼d.	Jan. 3...	8 d.	Jan. 8.	9 d.	Jan. 7.	8·38d.
„ 12...	8 d.	„ 11...	10¼d.	„ 10...	8¾d.	„ 15.	9 d.	„ 14.	8·39d.
„ 19...	8½d.	„ 18...	10 d.	„ 17...	8½d.	„ 22.	9¼d.	„ 21.	8·28d.
„ 26...	8¼d.	„ 25...	10 d.	„ 24...	9¼d.	„ 22.	9¼d.	„ 28.	8·05d.
Feb. 2...	8¾d.	Feb. 1...	10 d.	„ 31...	9 d.	Feb. 5.	9¾d.	Feb. 4.	7·98d.
„ 9...	8¾d.	„ 8...	10 d.	Feb. 7...	9¼d.	„ 12.	9¾d.	„ 11.	8·62d.
„ 16...	8¾d.	„ 15...	9¾d.	„ 14...	9 d.	„ 19.	9½d.	„ 18.	8·25d.
„ 23...	8¾d.	„ 22 ..	10 d.	„ 21...	9¼d.	„ 26.	9¾d.	„ 25.	8·15d.
Mar. 2...	8¼d.	Mar. 1...	9¼d.	„ 28...	9½d.	Mar. 5.	9½d.	Mar. 4.	8d.
„ 9...	8½d.	„ 8...	10 d.	Mar. 6...	8½d.	„ 12.	9 d.	„ 11.	7·85d.
„ 16...	9 d.	„ 15...	9½d.	„ 13...	8¼d.	„ 19.	9 d.	„ 18.	8·20d.
„ 21...	8½d.	„ 22...	9½d.	„ 20...	8½d.	„ 26.	8 d.	„ 25.	8·47d.
Easter...	...	„ 29...	9 d.	„ 27...	8 d.	April 2.	7¾d.	Apl. 1.	7·50d.
April 6...	8¼d.	April 5...	9 d.	April 2...	8¾d.	„ 9.	7 d.	„ 7.	7·60d.
„ 13...	9 d.	„ 11...	8¾d.	Easter...	...	„ 15.	6¾d.	Easter.	...
„ 20...	8 d.	Easter...	...	Apl. 17...	9¼d.	Easter.	...	Apl. 22.	7·87d.
„ 27...	8¾d.	„ 26...	9¼d.	„ 24...	8¼d.	Apl. 30.	7¼d.	„ 29.	7·91d.
May 4...	8¾d.	May 3...	9 d.	May 1...	7¾d.	May 7.	7 d.	May 6.	7·75d.
„ 11...	8¾d.	„ 10...	9¼d.	„ 8...	8 d.	„ 14.	7 d.	„ 13.	7·09d.
„ 18...	...	„ 17..	9 d.	„ 15...	7½d.	„ 21.	7 d.	„ 20.	7·28d.
„ 25...	8¾d.	„ 24...	9 d.	„ 22...	7½d.	„ 28.	5¾d.	„ 27.	6·85d.
June 1...	8 d.	„ 31...	8¾d.	„ 29...	...	June 4.	8¼d.	Whitsun	...
„ 8...	8 d.	June 7...	...	June 5...	8 d.	„ 11.	...	June 10	7·27d.
„ 15...	8 d.	„ 14...	9¾d.	„ 12...	7¾d.	„ 18.	8¼d.	„ 17.	7·38d.
„ 22...	9¾d.	„ 21...	9¼d.	„ 19...	8 d.	Jubilee	...	„ 24.	7·60d.
„ 29...	9¼d.	„ 28...	8½d.	„ 26...	8¾d.	July 2.	8¼d.	July 1.	7·89d.
July 6...	8¾d.	July 5...	8 d.	July 3 ..	9 d.	„ 9.	7½d.	„ 8.	7·20d.
„ 13...	7½d.	„ 12...	7¾d.	„ 10...	8¼d.	„ 16.	8¼d.	„ 15.	7·25d.
„ 20...	9½d.	„ 19...	8¼d.	„ 17...	9¼d.	„ 23.	8¼d.	„ 22.	8·15d.
„ 27...	10¼d.	„ 26...	8 d.	„ 24...	9d.	„ 30.	8½d.	„ 29.	8·45d.
Aug. 3...	9¾d.	Aug. 2...	8¾d.	„ 31...	9¼d.	Aug. 6.	11¼d.	Aug. 5.	10·38d.
„ 10...	9½d.	„ 9...	9 d.	Aug. 7...	11 d.	„ 13.	10 d.	„ 12.	
„ 17...	9¾d.	„ 16...	8½d.	„ 14...	10 d.	„ 20.	10 d.	„ 19.	
„ 24...	9 d.	„ 23...	8 d.	„ 21...	10 d.	„ 27.	9½d.	„ 26.	
„ 31...	10¾d.	„ 30...	8¾d.	„ 28...	9½d.	Sept. 3.	10 d.	Sept. 2.	
Sept. 7...	10¼d.	Sept. 6...	8½d.	Sept. 4...	10¼d.	„ 10.	9 d.	„ 9.	
„ 14...	10½d.	„ 13...	8¾d.	„ 11...	10¼d.	„ 17.	9 d.	„ 16.	
„ 21...	10¼d.	„ 20...	8½d.	„ 18...	10¼d.	„ 24.	8½d.	„ 23.	
„ 28...	10½d.	„ 27...	9¼d.	„ 25...	10 d.	Oct. 1.	9½d.	„ 30.	
Oct. 5...	9¼d.	Oct. 4...	9 d.	Oct. 2...	9¾d.	„ 8.	8¾d.	Oct. 7.	
„ 12...	9½d.	„ 11...	9 d.	„ 9...	9 d.	„ 15.	9 d.	„ 14.	
„ 19...	9¾d.	„ 18...	8½d.	„ 16...	9¼d.	„ 22.	9 d.	„ 21.	
„ 26...	10¼d.	„ 25...	8½d.	„ 23...	9 d.	„ 29.	9·05d.	„ 28.	

Indian Averages—(*Continued*).

1894.		1895.		1896.		1897.		189
Week ending	Indian.	Week ending	Indian.	Week ending	Indian.	Week ending	Indian.	Week ending
Nov. 2...	10¼d.	Nov. 1...	8½d.	„ 30...	8¾d.	Nov. 5.	8·80d.	Nov. 4.
„ 9...	10¼d.	„ 8...	9¼d.	Nov. 6...	8½d.	„ 12.	8·88d.	„ 11.
„ 16...	10¼d.	„ 15...	8½d.	„ 13...	8½d.	„ 19	8·44d.	„ 18.
„ 23...	10¼d.	„ 22...	9¼d.	„ 20...	8¾d.	„ 26.	8·89d.	„ 25.
„ 30 ..	9½d.	„ 29...	8¾d.	„ 27...	8¼d.	Dec. 3.	8·86d.	Dec. 2.
Dec. 7...	9¼d.	Dec. 6...	9¼d.	Dec. 4...	8¼d.	„ 10.	8·72d.	„ 9.
„ 14...	9¾d.	„ 13...	9 d.	„ 11...	8 d.	„ 17.	8·51d.	„ 16.
„ 21...	10 d.	„ 20...	9 d.	„ 18...	8½d.	„ 23.	7·97d.	„ 23.
				„ 23...	8 d.			

Indian. A small sale of 4,138 packages was held on Thursda prices ruling at the beginning of last week were well maintained. factory prices were obtained for some excellent Teas from belonging to the "Doom Dooma," "Makum," and "Assam Fro Co's. The Official Wire just to hand states that shipments fro commencement of the season to the 31st July were 25 million against just under 26 millions during the same period last year.

Week's avg. of Tea sold on Garden Account, 1898, 2,743 av. 10·38d. 1897, 3,120 pkgs., av. 11¼d.

	1898.		1897.		1st June to date 1898.		1st J date
	Pkgs.	Price.	Pkgs.	Price.	Pkgs.	Price.	Pkgs.
Assam ...	2,177	11·62	2,213	1/1¼	14,954	9·75	15,602
Cachar & Sylhet ...	130	5·50	364	5¼	2,418	5·99	12,557
Chittagong ...	—	—	—	—	—	—	—
Chota Nagpore ...	—	—	—	—	—	—	211
Darjeeling ...	—	—	134	10½	9,472	8·38	8,722
Dooars ...	436	7	276	7¼	4,807	7·11	5,924
Kangra, &c. ...	—	—	133	7	719	6·30	633
Neilgherry ...	—	—	—	—	695	6·66	788
Terai ...	—	—	—	—	805	6·13	106
Travancore ...	—	—	—	—	7,345	6·15	6,822

Total Tea sold on Garden Account 1st June to date 1898, 40,252 av. 8·09d. 1897, 51,370 pkgs., av. 8·31d.

Comparative prices of Indian Tea in London.

		1898.	1897.	1896.
DUST.	(Fair ordinary, dark liquor) ...	3½d	3½d	4½d
FANNINGS.	(Red to brown, strong rough liquor) ...	3¾d	4d	5d
BROKEN TEA.	(Brownish to blackish, strong liquor) ...	6d	6¼d	7¼d
PEK. SOUG.	(Blackish greyish, useful liquor).	6¼d	6¾d	8d
PEKOE.	(Greyish to blackish, some tip, useful liquor) ...	7¼d	8½d	9d
PEK. SOUG.	(Blackish greyish, inferior liquor).	5¼d	5d	5½d
PEKOE.	(Blackish greyish, some tip, inferior liquor) ...	5½d	5¾d	6¼d

Movements of Tea in London (in lb.) during July.

	Imports.			Deliveries.		
	1898.	1897.	1896.	1898.	1897.	1896
INDIAN	6,147,205	5,814,912	6,310,617	9,967,116	9,490,723	8,236,6
CEYLON	9,424,972	10,380,636	10,344,880	7,979,848	8,962,686	8,211,6
JAVA	285,950	293,230	414,540	239,610	381,780	460,9
CHINA, ETC.	5,723,800	6,851,340	6,600,037	2,556,218	2,671,243	3,091,3
TOTAL lb. ...	21,581,927	23,340,118	23,670,074	20,742,792	21,506,432	20,000,5

From 1st June to 31st July.

	Imports.			Deliveries.			Stock.		
	1898.	1897.	1896.	1898.	1897.	1896.	1898.	1897.	18
INDIAN	7,497,901	7,907,769	8,388,138	20,339,031	18,509,040	16,824,459	25,232,658	21,633,941	18,31
CEYLON	19,201,950	21,090,100	20,503,238	15,579,560	16,831,132	15,544,812	20,615,684	24,212,148	23,51
JAVA	534,730	742,700	1,007,020	520,170	712,180	858,900	672,140	782,740	1,13
CHINA, ETC.	6,252,254	7,136,887	6,695,088	4,824,724	5,252,855	5,990,039	13,278,794	14,887,371	20,34
TOTAL lb. ...	33,486,835	36,877,456	36,593,484	41,263,485	41,305,207	39,218,210	59,799,276	61,516,200	63,31

PLANTING OPINION.

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WRITTEN BY PLANTERS FOR PLANTERS.

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DOMESTIC OCCURRENCE.—The fee for inserting a domestic occurrence will be *One Rupee* for each insertion, payable in advance.

N. B.—Remittances should be sent to E. C. Duff & Co., Proprietors, "Planting Opinion," 11/12, Second Line Beach, Madras.

IMPORTANT NOTICE.

The Offices of this paper having now been removed to Madras, all remittances should be made payable to E. C. Duff & Co., Proprietors, *Planting Opinion*, 11 and 12, Second Line Beach, Madras, who will also attend to all advertisements, &c.

Letters to the Editor should also be addressed to the Madras Office.

SEASON REPORTS.

TO OUR SEASON REPORTERS.

Please post your next reports to reach Madras on Friday, the 16th September, 1898.

Season Reports should be sent to the Printers, Messrs. ADDISON & Co., direct, and not to *Planting Opinion* Office.

Coorg.

POLLI BETTA, *7th September.—Weather.*—Continuous rain since the 31st ultimo inclusive. More rain during these few days than during the whole of August. Average daily rainfall over 40 cents. *Plant-diseases.*—This rain is good for this season's supplies, but will probably bring on a big attack of leaf-disease, which is already showing up badly in parts. *Grain.*—Price of grains continue grievously high. *Works.*—Most seasonable works well in hand.

Kil Kotagiri.

1st September.—Rain.—We have rain now and cannot complain. From the 25th August the rain has been 5·01 cents. Planting is now being carried on again where it was not finished in the early rains. *Crop.*—Picking is starting in a small way, and a berry here and there is ripening up. It is to be feared this year the percentage of light will be high, and the average to the ton instead of being 90 to 95 bushels parchment will run nearer 100 bushels per ton. But crops are good. *Leaf-disease* has started here and there, not so badly as last year, and it is to be hoped will not do much damage. *Health.*—Good. *Labour.*—Plentiful.

CINCHONA.

ON another page of our present issue we give the Madras Government's review of the Report on the Administration of the Cinchona Department in 1897-98 by Mr. W. M. STANDEN, Director of Government Cinchona Plantations, Nilgiris. This review was, unfortunately, crowded out of our last week's number. We take the report up now, however, and find in it many points interesting to planters that find little, if any, reference in the Government's review.

First, however, we may note the chief figures given in the report, as these, naturally, are of the first importance with Government. Coppicing and thinning operations during the year were confined to sickly trees on ridges and poor soil and to trees on replanted land. The total amount of bark harvested during the year was thus only 128,349lb. from 118,683 trees as against 186,867lb. from 23,840 trees in the previous year. The yield of the plantations was supplemented by the purchase of 108,934lb. of bark in the local market. Adding the stock of bark on hand at the close of the previous year, the total amount of bark available for manufacture during the year was 484,034lb. In other words, after carrying forward 246,751lb., the Director added to it 128,349lb. yielded by the Gardens and 108,924lb. purchased from private planters. This gave him a total of 484,034lb., and out of this he disposed during the year 1897-98 of 241,895, thus ending the year with a stock of 242,139lb. as against 246,751lb. in stock at the beginning of the twelve months referred to. The stock of quinine at the beginning of the year was 4,862lb., at the close only 3,618lb.; while the figures for febrifuge are 1,227lb. and 5,660lb. These accentuate the falling off there has been in the demand for febrifuge. We are glad to find that quinine, on the other hand, is in ever-increasing request. The following small table shows the issues of quinine and febrifuge since 1889-90 :—

—	Quinine.	Febrifuge.
	lb.	lb.
1889-90	234	7
1890-91	1,356	200
1891-92	3,344	3,017
1892-93	3,204	2,608
1893-94	2,536	3,513
1894-95	3,631	3,956
1895-96	5,644	2,666
1896-97	5,908½	3,709¼
1897-98	6,336½	1,955½

Some interesting figures are also given in regard to cost of production. The cost of the chemicals used per pound of febrifuge extracted from red barks was As.15-11, while the chemicals and oils used for the extraction of quinine and febrifuge from the crown barks cost Re.1-8-1 for each pound of alkaloid. The cost of 11,481lb. alkaloids was Rs.82,705-4-1, or Rs.7-3-3 per lb. The cost in 1896-97 was Rs.8-2-2 per lb. of alkaloid, and, deducting the value of the raw material used, the cost of manufacture and distribution was Rs.2-0-7 per lb. against Rs.2-7-7 per lb. last year. The crown barks treated during the year yielded an average of 4·04 per cent. sulphate of quinine and 1·65 per cent. of febrifuge, while the red barks gave 3·75 per cent. of febrifuge. A small proportion of the purchased bark, viz., 8,934lb., gave the very high outturn of 6·40 per cent. sulphate of quinine and 1·04 per cent. of febrifuge, and the remaining 100,000lb. averaged 3·74 per cent. sulphate of quinine and 1·75 per cent. febrifuge.

The most interesting points in the report from the planters' point of view are the above particulars regarding barks purchased from private growers, and certain remarks made on the subject of replanting and the restoration of exhausted soil. Before noticing these latter, we ca readers' attention to the following statistics showin annual yield of barks since 1889-90 :—

—	Crown and Hybrid barks (quinine and febrifuge barks).	Red barks (febrifuge barks).	Total
	lb.	lb.	
1889-90	6,650	8,600	1
1890-91	96,200	...	9
1891-92	122,500	22,000	14
1892-93	157,771	13,946	17
1893-94	52,600	122,400	17
1894-95	152,800	43,800	19
1895-96	136,000	97,800	23
1896-97	237,000	1,100	23
1897-98	125,934	114,650	24

These figures represent the outturn of three "esta Dodabetta, Nedivattam and Hooker. The first is the important. It is in very satisfactory condition, and STANDEN states that "it is undoubtedly the finest cin estate of its size in Southern India." He remarks th growth of shoots from coppice stools has, in some pa the estate, been very good, but in other parts the r have not been satisfactory. A small plot was cleared planted with plants raised from seed received from Ja mainly to enable a comparison to be made betwee growth of plants on virgin soil and that of plants g on old cinchona land. The Director remarks tha difficulty experienced in growing a second crop of cinc on land which has been for many years under cin cultivation raised the question of the deteriorati crown bark plants grown from seed taken from the trees on the plantations. For this reason fresh see obtained from Jamaica. But, he adds, if it can be p that no deterioration of the plant has occurred, the of success which attends the replanting of old cin land must be due to a deficiency of plant food, or change in the physical condition of the soil, or to a com tion of these causes. He is inclined to think that the cause is a change in the physical condition of th brought about by years of cultivation and exposure t and wash. "Such soil," he observes, "is greatly in in the power of retaining moisture to virgin land contains an ample supply of humus, and when it is sidered how trying to plant life is the long peri drought which is characteristic of the climate o Nilgiris, the importance of the retention of moistu the soil cannot be over-estimated." He purposes t periment on the lines of a period of fallow, the appli of manure, and the planting of shade trees.

With further reference to the subject of manure STANDEN points out that the numerous and valuable e ments made by Mr. D. HOOPER on the action of manu raising the quantity of alkaloids in cinchona barks c sively proved the desirability of the application of fert containing nitrogen, potash and phosphoric acid, but alt it was shown that, in the case of individual trees, the a of quinine was increased 50 per cent. and sometimes more by suitable manures, no steps have hitherto been to profit by the conclusions drawn. Various manures as fish, bonemeal, nitrate of potash and castor poona been applied from time to time, and in every ca

nprovement in the richness of the bark has been considerble, but the cost of the application was not recorded, nor ere the experiments made on a sufficiently large scale to be f much practical use. He then gives the following interestng details of experiments made during 1897-98:—"Of 2,400 ees on the Dodabetta estate, 800 were treated with a ixture of nitrate of soda, nitrate of potash, bone-meal and astor poonac, 800 received super-phosphates, castor poonac nd nitrate of potash, and 800 were left unmanured. The ems of all the trees that were manured were covered with rass in view of the fact that the exclusion of light favours ne development of alkaloids, and renovation pits were ug among the manured trees. The unmanured trees were ft uncovered and will receive no more cultivatiou than the rdinary weeding and digging given to the rest of the lantation. At the end of a year the 2,400 trees will be ppiced, and the bark yielded by each plot of 800 trees ill be worked up separately in the Nedivattam factory. A areful account will be kept of all expenses incurred on each f the three plots from the time of the application of the anure, and the yield of quinine and febrifuge will be ecorded for each plot." In this way, the Director remarks, is hoped that it will be possible to prove that when a nchona estate is worked on a coppice rotation, it is highly rofitable to adopt every possible means of enriching the ark before the trees are cut down. The 800 unmanured rees will probably yield 4,000 pounds of bark analysing per cent. or 160lb. of quinine, and it is expected that each lot of manured trees will give 4,000lb. of bark analysing per cent. or 240lb. of quinine. Taking the value of uinine at Rs.10 per lb., the increased yield would be worth s.800, while the total extra expenditure on each of the anured plots will not be much more than Rs.180. So that ere would be a profit of about Rs.620 per acre if the sulhate of quinine was increased 50 per cent., *i.e.*, from 4 per ent. to 6 per cent. An increase of rather less than ½ per ent. of quinine will, it is estimated, cover the cost of the anure, &c. If results prove these calculations to be correct, Ir. STANDEN will deserve additional praise beyond that hich Government has rightly accorded to him for his work uring 1897-98. His report for that year is unquestionably f great value, and we would recommend all cinchona-planters n Southern India to study it attentively. At the same time e think that they might reasonably ask how, in the face of he figures given in that report, the Madras Government can ustify the conclusion expressed in G.O., No. 140, of 10th March, 1898, that in addition to the purchase of bark rom private growers, it was necessary that the plantations hould be extended.

THE PRUNING OF TEA.

WITH reference to an extract frrm a Colombo contemporary that is published on another page, we may emark that although the recent correspondence concerning he Pruning of Tea has been very interesting, we have not bought it necessary to publish any part of it *in extenso*. Our contemporary's summing up will suffice to indicate the general lines of argument, and we would only add that ome few of the writers did not, apparently, distinguish etween real *pruning* and what Dr. (now Sir George) King ermed in the Agri-Horticultural Society's Journal for 1871 "mere meaningless mutilation." The paper from which this term is quoted deserves to be studied over and over again, and we cannot but think that our Ceylon friends would learn something about tea-pruning from it, or from the extracts that Dr. Watt gives from it in his recent work on Pests and Blights. At the time Dr. King wrote there was scarcely any true pruning practised by planters in India. Dr. Watt has largely utilised his predecessor's remarks, but has also been able to profit by the experience gained by numerous planters who for years past have tried to adopt definite systems of pruning. There are so many considerations to be borne in mind in matters of this kind, that one man's experience may need to be subjected to various modifications before it can be adopted by a brother-planter as his guide also. It is, however, a happy sign of the times that there is much more inclination among planters nowadays than there was in earlier years, not merely to study scientific points theoretically, but to make practical experiments thereon, and to apply in the daily routine of the estate the lessons thus learned. This is as it should be, for, as Mr. Parsons (we think it was) pointed out at the 1897 meeting of the U.P.A.S.I., a scientific expert would be of comparatively small value to the planting community unless some among them were in a position to furnish him with *data* to work upon. It is for them to detail their experiments and their experiences, leaving Science to declare which are causes and which effects; which are good, which bad; and to find remedies for all that is harmful to the plants under cultivation.

NOTES.

Pepper. Last year's Pepper crop in India was short of the average, and this year's seems likely to turn out worse.

Coffee in Coorg. The Government forecast of the Coffee crop in Coorg puts it down at 2,730 tons from European and 1,470 tons from Native gardens, making a total of 4,200 tons, or a total of 79·2 per cent. of the average annual crop.

Ceylon Tea. A Colombo contemporary observes that the official tea crop estimate will be revised early next month. The total shipments to the United Kingdom for the current month amount to about 6,250,000lb., the smallest quantity shipped in any month this year. The shipments during July were 10,411,701lb.

Ceylon Tea in London. Telegraphing to the *Times of Ceylon* on 1st instant, Messrs. Gow, Wilson and Stanton, London, reported a steady market, and quoted fair liquoring Ceylon Pekoe Souchong at 6¼*d*. The average price of Ceylon Tea sold on garden account during the week was 7¾*d*.

Ceylon Tea Sales. At the public sale of tea at Colombo on 31st ultimo, 6,759 packages — 515,536lb. were offered, of which 5,155 packages — 393,915lb. were sold. The sale showed common teas somewhat easier, though all good medium and fine kinds realized full rates, and in some instances showed an advance.

Estimates of Coffee Crops.

Coorg always manages to turn out an annual estimate—whether correct or not. Is it impossible for Mysore, the Nilgiris, Nelliampathis, Shevaroys, &c., to do likewise? The officials concerned could surely manage some sort of an estimate, if they would but take the work in hand.

Locusts.

A Home paper states that the locust disease fungus, cultivated by Dr. Edington, Director of the Bacteriological Institute, Grahamstown, is proving effectual in exterminating this pest. Internal doses of a liquid in which the fungus culture was dissolved were given to some locusts which were liberated among three swarms, and in seven days the swarms were destroyed.

A Failure.

"Alinit" is a yellow powder (regarded as a microbe) "made in Germany," which is supposed to foster cereals even in soil poor in nitrogen; but, according to a Home contemporary, recent experiments made with it by Dr. Paul Wagner, Director of the Agricultural Experiment Station at Darmstadt, have given negative results. Its value may, therefore, be questioned until further experiments have settled it.

Tea Sales in Calcutta.

The average at the Calcutta Tea sales on 26th ultimo was 5 annas 7 pies. About 20,000 packages were to be offered on 2nd instant. At the Calcutta Tea sales on Friday, the 2nd instant, 20,000 packages were offered and 19,000 packages were sold. There was a rather better spirit, all good liquoring kinds were steady, and leafy teas for price were firm, while poor liquoring kinds were again easier. Darjeelings showed a great falling off, many invoices being withdrawn.

Pastures New.

The Seychelles are being "boomed" just now as offering all that is charming and profitable for worn-out Anglo-Indians, as well as for young men with a thousand pounds each to spare. It is even said that some planters from Behar who recently visited Mahé were so impressed that they are going to "quit Indigo" and try what the Seychelles will do for them. Pray, do not all go at once, gentlemen, or our subscription list will suffer!

Imperial Courtesy.

The Austrian Consul at Colombo has received a large-sized photograph of His Imperial Majesty, Fransz Josef, Emperor of Austria. The photograph is intended as a gift to the Planters' Association of Ceylon, as a return compliment for the present of Ceylon Tea, together with the album of views sent by the Association to the Emperor. It is handsomely framed, bears the Emperor's autograph, and is accompanied by a letter from His Majesty.

Mr. Chamberlain on Pests, &c.

Speaking upon the Colonial Grants-in-Aid lately, the Right Hon'ble Joseph Chamberlain, Secretary of State for the Colonies, observed:—"It is not easy to extend indefinitely the production or sale of any particular plant or produce. In the first place it seems as though nature revenges itself in some way or other, because almost invariably the action is followed by some kind of insect or pest by which the industry is hampered damaged, as with the coffee in Ceylon and arrowro Montserrat and other industries. Not only that, b the demand in all these cases is limited, if you increas production too rapidly, you destroy all profit in conne with it."

Nilgiri Tea.

A correspondent writes t *Madras Mail* from the Nilgir "A Ceylon planter buys Glen Morgan estate an Assam planter invests in a half share of 'Dunsandle Es and there is a good deal of talk about a large Com being formed to take up some tea estate on these hills now that nearly all plantable land is reserved, e should go up in value, and it behoves the Nilgiri plan keep abreast of the times by having good machinery experienced men in charge of the Factory and not le to the 'tea-maker.' These hills can produce just as a tea as Ceylon, and have much in their favour that C has not."

Tea in New York.

The *American Grocer* of 3rd remarks:—The auction sale day, by the Montgomery Auction and Commission C 14,022 pkgs., will be a good test of the market, whic ruled firm since our last. Demand has been light. sale includes new crop teas, including Formosa. Mediu good medium Japan, 25 at 26 c. The Appraiser's rejected during July 802 pkgs. tea or 32,846, po of which 629 pkgs. were Pingsuey. There were p 33,045 pkgs. or 2,043,850 pounds. Not a packa Formosa, Foochow, India, Ceylon or Japan tea wa jected. The following are the wholesale market quot (gold dollar cents) from the same newspaper's *Current*:—*India.*—Pekoe Souchong 18 at 20; Pekoe 24; Orange Pekoe 25 at 30. *Ceylon.*—Pekoe Soucho at 20; Pekoe 22 at 24; Orange Pekoe 25 at 30; Orange 35 at 45; B. C. Pekoe nominal. *Darjeeli* Pekoe—at 33; Orange Pekoe 35 at 40; Fancy O 55 at 60.

Prospects of Coffee Prices.

It is satisfactory to learn, o authority of a Home paper, that prospects affect the London v of Indian Coffee, as well as those of Indian Tea. A co porary says:—"All reports which have reached us from the South-west Coast of India regarding the str of the monsoon are far from satisfactory from a pla

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COFFEE SHADE TREE.

Sun-dried Erythrina Lithosperma loppings, &c., contai ton:—

61·50 lbs. Nitrogen.
57·38 „ Potash.
14·92 „ Lime.
13·68 „ Phosphoric Acid.

Seed cured under Messrs. Sutton and Sons' advice.

Orders should be booked early for the 1898-1899 crop of see the parent trees of above analysis at Rs.6 per pound cont about 2,000 seeds. *Germination guaranteed.*

Only thornless variety extant, and is not procurable anywher from the

MANAGER, ARIENKOW ESTATE,

Shenco

point of view. It appears that the first half of the rainy season has been greatly disappointing, a small quantity of moisture having fallen, far too little to give the young plants a fair start, and the rains in the latter half, although better, have so far not been sufficiently strong to counteract the damage done to the growing crop. Coffee in the Coorg and Neilgherry districts alone promises a fair yield, whilst Mysore, Wynaad, etc., have suffered considerably, and the planters there are greatly distressed at the poor prospect of their crops. High prices for fine coloured East Indian will, therefore, be the rule, we fear, in the coming season." The last sentence is cheering enough, whatever may be said of the others.

The Paris Exhibition. Read this from a Colombo contemporary:—"Most of the preliminary arrangements connected with the representation of Ceylon at the Paris Exhibition of 1900 are now complete. H.E. the Governor has appointed a Provisional Committee consisting of Sir Fredrick Saunders as Chairman, the Chairman of the Chamber of Commerce, the Chairman of the Planters' Association, the Mayor of Colombo, Mr. Drieberg, Principal of the Agricultural College, and Mr. Willis, Director of the Peradeniya Gardens. It has also been determined to do the thing properly, the pushing of Ceylon tea being, of course, the first consideration kept in view. Application was made a little time ago by wire of the British Commissioners for 2,000 square feet of space, but inasmuch as the total space allotted to the British Colonies was very small, it was only by taking some from the space given to India, that the quantity we required was eventually made up. For this space £6,000 was asked, and this we have agreed to pay." Now, what has India done so far? Especially, what has been done for Indian Tea and Indian Coffee, and Indian Cinchona? It is a curious thing that Ceylon always shows more "go" than India. Is it the *spices* that bring this about, or is it the mere activity of the small as compared with the sluggishness of the bulky? In either case we should like to see Indian Planters forming an exception to the general "To-morrow" rule of India—the rule that lays down that man must do nothing to-day that he can manage to leave over for to-morrow, and so on *ad infinitum*.

Tea and Coffee Markets. *Indian Teas.*—The *Produce Markets' Review* of August 13, 1898, reports:—The market has been more active, in consequence of the better selection offered, and the demand generally is improving. For the finest descriptions the bidding was brisk at the sales and firm to advanced prices were paid. This particularly refers to the Assam and a few Darjeeling growths, the former being quite equal, and in some cases superior, to the earlier shipments, and there appears every indication of an ample supply of these grades later on. Current values will no doubt, on the whole, be maintained for some little time, but should there be the same proportion of fine grades in future imports, a lower level of prices is most probable. The few lots of fine Darjeeling offered were eagerly competed for; this is not surprising considering the absence of fine Teas from this district for several months past. Values for the finest Teas of this growth are more likely to be maintained than for similar grades of Assam, as the proportion is much smaller, and there is likely to be a continued good demand for them. There is little improvement in the Teas from the Sylhet and Cachar gardens, the former particularly being unusually poor, and are mainly bought for leaf, prices being favourable for imparting freshness to the low-priced blends. At the public sales 26,300 packages were brought forward and mostly sold.

Ceylon Teas.—The public sales for the past week included more Ceylon Tea than has ever before been offered in a similar period. Some 40,700 packages in all were brought to auction, which necessitated spreading the sales over two days, part being sold on Tuesday and the balance on Wednesday. Notwithstanding these excessive supplies, prices were distinctly firmer for nearly all descriptions. The lowest kinds especially were keenly competed for, and consequently in many instances a distinct advance was established. The quality of the Teas generally showed no improvement, a large proportion being extremely poor, while the comparatively few parcels or really "stand out" Teas realised extreme prices. Out of the 40,700 packages printed, only 1,467 failed to find buyers in the auction room.

Coffee.—According to the statistics just published, the European imports and deliveries during July practically balanced one another, but the world's visible supply increased by 13,740 tons, and the total is now given as 336,440 tons against 265,500 tons a year ago. Large as this amount is, it is barely equal to five months' deliveries in Europe and the United States, if the rate of delivery is to continue the same as in the first seven months of this year. It is no doubt quite possible that the large increase in the deliveries does not mean a corresponding increase in the consumption, but at the same time there can be no question that the very low prices have stimulated it, particularly in the United States. The improvement in the demand noticed last week has continued, and the small quantity brought to auction has sold freely at dearer prices for nearly all descriptions, common and medium Costa Rica being from 1*s.* to 2*s.* dearer, while new crop Colombian shows a much larger advance. Ceylon has again sold at very full prices, while only a few transactions are reported in East India.

LETTERS TO THE EDITOR.

CASTOR-CAKE AS A TEA MANURE.

Sir,—A Ceylon planter asserts that ordinary castor-cake appears to improve the quality of tea to some extent. This article does not appear to be mentioned in the chapter on Tea Fertilisers by Mr. David Hooper in Dr. Watt's *Tea Pests and Blights*. Has any South Indian planter tried it?

A. R.

GENERAL ARTICLES.

TEA FOR RUSSIA.

The *I. P. G.* remarks:—

Although tea is largely drunk in Russia, yet the quantity used per head is very small, as a beverage is made of very mild tea mixed with lime juice, and is not infused in the same way as we Britishers manage it, and what a homely housewife at home would consider only enough to infuse a couple of cups would serve a whole Russian household. The combination of the lime and the weakness of the tea

infused give the liquor the appearance of what is known as Montserrat Lime Juice before it has been diluted with water, and milk is scorned as it would not keep, and the Russian likes to keep his drink to spread over the day, he does believe in taking it by the cup, as we do. We notice Ceylon is trying to capture the market, but we do not anticipate much success for a time, unless they manufacture specially for Russia. What used in olden times to be called *namoona* tea would suit admirably. *Namoona* tea is a sort of a hybrid between green and black tea. The leaf when brought in is put into a *currié* or metal vessel, which is warmed. This makes the leaf limp, and it can be then rolled by hand, and after so doing allowed to remain an hour or two in the ball; then put in the dryer and fired off. It has a remarkable flowery appearance from the white tip and draws a very pale straw-coloured liquor. It is admirably suited for the American palate, as well as Russian, and some of our planters might try a little as an experiment, and we think it would pay them.

MANURE-YIELDING TREES.

MR. T. W. S. SMYTH, Executive Engineer, Periyár Works, Madura, wrote to the Superintending Engineer, VI. Circle, on 22nd September, 1897: "The ryots say, and I believe with a good deal of truth, that the lands will, without much manure, bear only one crop, and it may be said that the financial success of the project depends to a great extent upon a large area of second crop being grown, and everything possible in the way of growing leafy jungle on the Sirumalai and Alagar Covil hills to provide leaf manure, or in any other way, should be done. It might even be advisable to try the effect of guano, or artificial manures, upon the lands." The attention of the Board of Revenue was drawn to this, and the matter was then referred to the Conservator of Forests, Southern Circle, for report. The Acting Conservator, Mr. C. E. Brasier, wrote a very interesting letter on the subject, stating that he had consulted the Collector of Madura on the subject, and had been informed that the matter attracted the District Forest Officer's attention already while on inspection. He was of opinion that every endeavour should be made to encourage the growth of shrubs and trees producing leaves suitable for manure, and that provision should be made for this when preparing working plans. Mr. Brasier proceeds:—"He says that at present no restrictions are put in the way of the ryots wishing to procure permits for manure leaves, but if this continues the hills will soon become as bare as the Pachamalais in the Trichinopoly district. It would appear to me from the Collector's reply that the time when something will be done—viz., when working plans are being prepared—is somewhat indefinite, and from the latter portion of his letter (copy enclosed) it would appear that when this time arrives there will be considerable risk of having nothing but barren hill sides to operate on. The subject seems to be of such importance as to merit immediate action to prevent denudation and possible washing away of soil on the very hill sides themselves with the usual result of burying cultivable lands at their foot in gravel and débris. One of the most, if not the most, valuable shrubs of plant used for manure is the *Tephrosia purpurea* (Kolingi—Tamil) which springs up readily on most dry lands in the southern districts of the Presidency; its seeds can be collected cheaply and in vast quantity, and I believe ryots in Tinnevelly actually sow their dry lands with this seed in order to reap or uproot the plants solely with a view to manure. It may, therefore, be worthy of consideration whether the Forest Department should not place a portion of the hills in question under treatment on a very short rotation solely with a view to the production of a manure-yielding coppice or pollard forest. Vacancies in the existing stock might be filled in by dibbling Kolingi or other nitrate-yielding species. The species that are valuable for this purpose are those that belong to the *Papilionaceous leguminosæ*, and these might be specially encouraged in preference to other species which might be eradicated. By some such means a maximum yield of manure from a minimum area of forest might be obtained. Nor will it be necessary to work the forest at a loss on this system, as will be readily understood when I mention that ryots and mittahdars in the Salem district actually sell the right to take Kolingi from their lands at from Rs.5 to Rs.7 per cart-load of 22 head-loads. Altogether the subject is one which, I think, it is the duty of the Forest Department to study, more especially in the special circumstances of the large and sudden increase in the irrigated area of the Madura district, which on this account alone appears to offer the most likely locality for successful experiment."

These remarks should be of interest to our readers, many of who have doubtless already learned to appreciate trees not only as shad givers, but also as manure-yielders.

SMALL FARMING FOR RETIRED PLANTERS.

THE London correspondent of the *Times of Ceylon* ha some interesting remarks on a field of occupation that open for retired planters and colonists who are quittin exile to enjoy life "at Home" once more. He says:—

Planters and others of your colonists retiring on small means, forced to leave Ceylon from ill-health, are much concerned to kno into what channel they shall invest their money and what to that will give them employment and aid them to keep the wolf fro the door. This is well known here, and many are the schemes th will come before them which are tempting but undesirable. Ver lately, I gave myself some little trouble to look into an investment house property an old friend from Ceylon thought he would do we to go into, and my objection to the whole scheme was very quickl acknowledged by him. The most natural employment for the retire planter is farming—and not a few have gone into it. There is no a far better chance, by increased railway accommodation and th rapid additions to books upon the subject, of farming being succes fully carried out. Everything, moreover, now points to a *peti culture* as the farming of the future. Therefore the potentialities a moderate-sized farm present themselves in a far more auspiciou light than was possible some years ago. A recent article gave som very interesting details in this connection. It spoke of farms of 6 acres. It looked to the farmer having £600 to start with. £10 pe acre it thought none too much to spend to secure a sure foundatio and to be in a position to take advantage of falling markets b buying food-stuffs and stock at great advantage. Twenty-five acre it advised being set apart for pasture and thirty-five for arable lan The object of this was to keep the largest amount of stock withou over-crowding. To make the farm pay, after giving sufficien attention to ordinary farms tock, it insisted upon poultry, rabbits an fruit-growing being adequately represented. Two horses it cons dered indispensable, and it considered a dairy of six to eight cow would aid the success of the venture. Beyond the courteou accommodation of neighbours, not a drop of milk was to go off th farm. Butter-making might not be so profitable as milk selling, bu the produce of six cows, on a small farm where a large herd of pig and fattening poultry are kept, it considered far more valuable tha disposed of as new milk. The butter would give a moderate return but the skim and butter-milk would be simply invaluable fo securing high-class pork and table poultry. Pig-keeping should b regarded in a serious light as the mainstay of the business. Pur large Yorkshire whites, or a cross of these with pure Berkshire, i recommended as best. An average of 100 pigs should be kept and i large sheds with plenty of room, with abundance of clean, swee straw in place of the old style of stye. It is very hard lines on a pig which is naturally a very cleanly animal in its habits, that it ha so long been so badly housed. Warmth, cleanliness and prope ventilation are a *sine quâ non* in stock-keeping. Rabbit-breedin with 1,500 young rabbits annually it showed would produce £37 pe annum, more than half the rent of the farm. Hutches were con demned, a barn partitioned off and floor covered with clean straw being recommended until the young at six-week old were remove to the warren or run. In that most important section, poultry farming the production of eggs, it said, was to be preferred to that of tabl fowls. It recommended that five acres of arable be set apart, sheltere from north and east winds as far as possible. The whole to be enclose with six feet netting and subdivided into half acres running parallel This would give ten runs, and the whole to be planted with selected half standard apple trees of cooking variety. Planted 20 feet apar each way would give, allowing for fowl-houses, 100 trees to the acre Good six-year old trees cost 2*s.* each = £50. Each run would carry 50 hens, for which suitable houses would have to be erected with southern aspect. Minorcas or Leghorns, being non-sitters, it con sidered preferable. Allowing 125 eggs each hen, 62,500 eggs would be produced, worth 13 a shilling all the year round. Deducting from the amount thus realised £240-7-0, a liberal allowance for food, viz. £117, there is left £123-7-0 per annum. For the first few years there would also have to be deducted cost of houses, enclosing wire and trees. The annual value for five years from the 500 apple tree

would amount to £31-10-0 per annum. After five years the value of the fruit, which would by that time have vastly improved, could be added to the yearly profit. These sixty-acre farms are attracting a good deal of attention just now, as a solution to the ever-troublesome problem, how to bring back agriculture to a profitable employment and rent produce.

Since writing the above I see further confirmation of those aids to agriculture which the literature of the period provides. Mr. Rider Haggard is engaged upon a book called "A Farmer's Year," being his commonplace Book for 1898. It is a daily record of the history of a 360-acre farm from January to December, and of other matters connected with country life in Norfolk. The book, which will be fully illustrated, will begin to appear serially in the September number of *Longmans' Magazine*.

THE FUTURE OF TEA.

ADVERTISING *versus* MANUFACTURE.

THE following extracts from a letter by an old planter, "Looking Back at Ceylon," to the local *Times*, will, we think, interest many of our readers :—

I have faith in Ceylon tea still, and . . . I have a very great faith in the Ceylon tea planter. . . . To tell the truth, I was disappointed in the tea-bush, more especially at first, as I spent some time in the older coffee districts where it has not seemingly been so well able to stand the somewhat cruel treatment it has been subjected to during the last few years, when I suppose it was the order of the day to go in for quantity rather than quality.

I remember, as far back as 1891 or 1892, writing you that I had seen an invoice of Ceylon tea sold in Mincing Lane at 2½*d.* a lb., and warning the Ceylon planter that, even if it did pay the tear and wear to sell at such a price, still shipping home such rubbish would certainly damage the good name your tea had then. I suppose it did not matter so much in those days, as the rupee was so low ; but now, it is another story, and I fancy most men will acknowledge that the system of quantity rather than quality has depreciated the value of your staple and gone a long way towards killing the goose that laid such golden eggs. At least, anyone who has revisited the tea districts lately must think so.

But yet I have faith in the tea plant. It wants a lot of killing, and, notwithstanding constant and savage attacks with the knife, is game to the very roots and will still come up to time again. And I have yet more faith in the Ceylon planter (I mean, of course, the real planter who resides on the estate), if left to himself, that he will come to see before it is too late that too much cannot be expected even from so hardy a plant, and that, with such expert advice as I understand is now available on the spot, he will take proper steps to reinvigorate the bush. It seems to me the practical man living on the estate is not allowed sufficient rope and is made to work too much by rule of thumb. Again, too much must not be expected from a few days' visit by an expert, however good an expert he may be. It must take time and much care to cure an evil which has undoubtedly been going on for years. Still, in many ways, if I am not presumptuous in saying so, I think certain accepted methods of curing your tea might be modified with advantage; say, in reference to withering in damp weather, rolling, fermenting and firing; and more particularly in sifting, which, I think, ought to be done more during the rolling process than after the firing.

QUANTITY *vs.* QUALITY.

But I am perfectly alive to the fact that I can scarcely now be looked on as an up-to-date planter or tea-maker, and that I may be thought even impertinent in making these remarks. Would it be awfully rude to hint that in the very early days, though we had vastly inferior factories and no machinery at all to speak of, we yet managed, somehow, to turn out a tea which fetched over double the present average price of Ceylons in the Lane? But I am always told that, though that is true, I must remember the quantity now treated is so much more. That I think is the whole matter in a nutshell. Why not take as much pains with the large quantity as we did with the small, or only treat as much as you can afford to treat well? I am convinced it is not the large quantity but the poor quality of Ceylon tea now which has so much reduced your average. Let some man try on his own plan, and *sell the parcel under another mark.* A good tea will always, with fair play and sold on its own merits, fetch a good price.

It seems to me the powers-that-be have got hold of the wrong end of the stick. The wise man will spend his money first in making an article as good as he possibly can, and not till that is done will he spend money on advertising it. All the advertising in the world will not keep up the demand for an article if it is not really good in itself.

It is the working class here that depends most on tea, and will pay most for it, if good. A friend told me once that he gave his coachman a present of a pound of tea, for which he had paid 3*s.*—a long price in those days, and that he had told John that it was especially good tea and not a common cheap article. "Oh, Sir," said John, "I always pay that for my tea. I can't abide them cheap teas, they gives me the 'eaves." Poor John, I wonder where he gets his good tea now, but more likely he is dead by this time, of 'eaves.

THE TEA AROMA.

I am afraid to say a word which might seem to hint that the splendid and costly machinery now in such general use in Ceylon could possibly be improved ; but the fact is, I can't think well of the tremendously powerful fan I saw, which, it seems to me, must draw off so much of the aroma in firing. By the way, did we not secure more of the aroma with the modest chulah? A chulah would not be in the running now, of course, but how about the chulah flavour?

THE MADRAS CINCHONA REPORT.

THE following is Government's review of the report on the Administration of the Cinchona Department in 1897-98, to which further reference is made in our leading columns :—

Mr. Standen's report on the working of the Government Cinchona Plantations and the factory under his control during the year 1897-98 is full and clear. The Government will proceed to notice briefly the more important features in the year's administration.

The year under review was remarkable for the comparative failure of the North-East monsoon and the consequent prolonged drought which prevailed from December to March. This caused a certain amount of mortality among the young plants, particularly among those on old land. It would appear that from one cause or another 122,580 plants died during the year. All these vacancies were, however, supplied by fresh plants.

In parts III. and IV. of his report the Director discusses the interesting questions of replanting land which has already borne a crop of cinchona, of regeneration from coppice, and of the utility of manuring. With regard to the question of replanting, the results of the experiments made on the Neduvattam estate appear to establish the inexpediency of endeavouring to replant old land with success as long as new land is available. The Government, however, approves of the Director's proposal to try the experiment of replanting old land under shade. The facts noted by the Director as to the regenerative power of the stools in certain plots certainly warrant the hope that under careful cultivation the cinchona on the Nilgiris will undergo four rotations by coppice without loss of vitality. An equally important question in working a cinchona estate on a system of coppice rotation is whether a large outlay on manuring will be profitable. Mr. Standen has selected three plots

PLANTING BOOKS.

Map of Ceylon Tea Estates Rs.9 ; colored Rs.10 ; Mounted in case Rs.14. Map of Ceylon Plantations, Plain Rs.8. Inga Va, Rs.2-8. Areca Palm, As.12. Cocoanut Planter's Manual, Rs.4-10. Ceylon Manual of Chemical Analyses, Rs.3-10. Tobacco Cultivation, Rs.3-10. India Rubber (now in the Press). Coffee Planter's Manual (now in the Press). All about Spices, Rs.3-10. Coffee Tree and its Enemies, Rs.1-8. All about Grub, Rs.1-5. Brazil as a Coffee Country, Rs.1-8. Cardamoms, Re.1. Ceylon Coffee Soils and Manures, Rs.1-9. All about Aloe and Ramie Fibre, Re.1. Estate Buildings, Rs.4-4. Coffee and Chicory, Rs.1-13. Coffee Cultivation in Ceylon, As.5. Tea Cultivation and Manufacture, As.5. Tea Cultivation in Ceylon, As.6. Tea at high elevations in Ceylon, As.3. Manuring of Tea Estates, As.8. To Economise Labour Supply, As.12. Planting, Pruning and Preparation of Tea, As.12. Salt for Agriculture, As.8. Cocoa, Cocaine and its Salt, Rs.2. On the Importance of Lining, As.4.

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bearing 800 trees each. Two of the plots have been highly manured and the third left unmanured. Careful accounts of the expenditure and return from three plots will be kept, and Mr. Standen anticipates that not only will the direct return from the manured trees, when, coppiced, be greater than from those unmanured, but that the stools on these plots will exhibit a greater vitality and regenerative powers. The results of the experiments will be awaited with interest.

Coppicing and thinning operations during the year were confined to sickly trees on ridges and poor soil and to trees on replanted land. The total amount of bark harvested during the year was thus only 128,349lb. from 118,683 trees as against 186,867lb. from 23,840 trees in the previous year. The yield of the plantations was supplemented by the purchase of 108,934lb. of bark in the local market. Adding the stock of bark on hand at the close of the previous year, the total amount of bark available for manufacture during the year was 484,034lb.

The following statement shows the quantities of bark, quinine and febrifuge, in stock at the beginning of the year, the additions made thereto, and the quantities disposed of during the year and the balance on hand at its close:—

	Bark.	Quinine.	Febrifuge.
	lb.	lb.	lb.
In stock at the beginning of 1897-98 ...	246,751	4,862	1,227
Additions made during 1897-98 ...	237,283	5,092	6,389
Total ...	484,034	9,954	7,616
Disposed of during 1897-98 ...	241,895	6,336	1,956
Balance ...	242,139	3,618	5,660

Work at the factory was much retarded owing to the loss at sea of the fusel oil and sulphuric acid required for the year's manufacture and to the consequent delay in obtaining fresh supplies. As the result only 240,580lb. of the total stock of 484,034lb. of bark were worked up during the year. The quantity of bark yielded 5,092lb. of quinine and 6,389lb. of febrifuge, or 11,481lb. of alkaloids in all. The results of the manufacture show that the factory was most efficiently worked; for the total cost of manufacture and distribution was only Rs.7-3-3 per pound of alkaloid as against Rs.8-2-2 per pound in the previous year. Deducting the cost of the bark worked up, the actual cost of manufacture and distribution per pound of alkaloid was Rs.2-0-7 as against Rs.2-7-7 in the previous year. At the same time the bark appears to have been thoroughly exhausted and no loss of alkaloids allowed to occur, the yield from the crown bark being on the average 4·04 per cent. of sulphate of quinine and 1·65 per cent. of febrifuge as compared with 3·32 per cent. of sulphate of quinine and 1·39 per cent. of febrifuge in the previous year. The yield from the red bark was 3·75 per cent. of febrifuge as against 4·45 per cent. in the previous year. The smaller percentage from the red bark was to be accounted for by the fact that all the bark was taken from trees on replanted land. It is also very satisfactory to note that the quinine manufactured was found by the Chemical Examiner to come up to the standard of purity laid down by the British Pharmacopœia.

The amount of quinine distributed during the year was the highest on record and exceeded the previous year's issues by 428lb. The sales of quinine packets by postal agency continued to show an increase, having amounted to 658½lb. against 628lb. in 1896-97. On the other hand, sales by the Revenue officers showed a further decrease. This matter will be further commented upon on receipt of the Director's detailed report on the sales under the pice-packet system. The demand of the Government medical depôts for febrifuge fell considerably. The decision of the Government not to extend the area under *succirubras* has thus been fully justified.

The total receipts and charges amounted to Rs.98,464 and Rs.95,300, respectively, against Rs.1,47,310 and Rs.82,549 in 1896-97. The fall in receipts was mainly due to the fact that the price of quinine supplied to Government medical depôts was reduced from Rs.18 in 1896-97 to Rs.11 in the year under review. The finan condition of the plantations is exhibited in statements Nos. 10 and 12 appended to the report. From the balance sheet (statem No. 12) it appears that the profit on the year's working amounte Rs.32,852-15-10.

The thanks of the Government are due to Mr. Standen for his effic working of the plantations and factory during the year. Government is also pleased to notice the testimony borne by Director to the good work done by his subordinates.

THE PRUNING OF TEA.

AFTER publishing various letters from planters giv expression to diverse ideas on the subject of the ri method of pruning Tea, the *Times of Ceylon* sums matt up in the following article:—

In all probability the vexed question of the best method of pr ing tea will never be settled any more than the same question applied to coffee was ever set at rest in the old days. Then as there were advocates of heavy and of light pruning, and each sec were confident that they were right and others wrong. But, i much as different methods must undoubtedly be applied in diffe cases, there can be no harm in examining what is said on either s of this controversy. On the one hand, we have men like Mr. Bo and Mr. Roger, who assert that on many estates the productiver of the plant and the quality of the leaf are being impaired by cessive use of the knife; and, on the other, a number of planters wide experience like "E. H." of Dikoya, and Mr. A. D. Maclean, declare that, provided only some discrimination is used, the n severe pruning does not hurt, but rather improves, the tree and vigour. To show how widely opinions differ on this point, we n only instance the fact that Mr. Bowie declares that in no case ou bushes to be taken down lower than 14 inches, whilst "E. H." is favour of occasionally coppicing the plant below the level of ground! This system—of which we confess we never heard befor euphoniously termed "collar-pruning"—is advocated by Mr. Geo Watt, an Indian authority. We refer our readers to the extra quoted by our correspondent from the work on pruning by t gentleman as evidence that he, at all events, did not think the n severe pruning possible would in any way affect the vigor and v lity of the tree. Planters, he tells us, are far too timid in th treatment of the plant—and then he proceeds to advise that "col pruning" should be adopted, though why he did not at once cal "coppicing," we do not know. That tea plants are sufficiently ha to withstand even such drastic treatment as this, all planters well aware. Let only a road be made through an old tea field, unless the plants to be removed are actually rooted out complet strong vigorous shoots will force their way, time after time, throu the road, no matter how much care be taken to destroy the stu If we are to believe Mr. Geo. Watt, the plant actually benefits fr this annihilation, and in time the bush grown on this stump indistinguishable from trees which have not been so treated. can hardly think, however, that this drastic method will ever generally adopted. "E. H.," however, expresses opinions w regard to early pruning, which are, so far as we know, entir opposed to preconceived opinion and general practice. It is usua thought to be a mistake to top young tea too soon, and the longe reason pruning can be deferred, we had always thought, the bet for the future stability and hardiness of the plant. But "E. thinks that the younger the plant when it is first pruned the bet able will it be to withstand the shock. This may or may not be case; but we cannot think that remorselessly heavy pruning repeated oftener than necessary, and applied to trees growing o weak, and non-stimulating soil, can be good for the trees. Circu stances alter cases, and no doubt places where pruning has b carelessly done—where the wood is all hard and white, and lit strong young wood is to be found, will be the better for a pre heavy use of the knife, but this can surely be overdone, and wh it is not actually wanted, it must be putting a strain upon the tr which is unnecessary and therefore hurtful. The wise maxim in t

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ease would be not to prune more heavily than is necessary to maintain the trees in good heart. All that is done more than that is harmful. Some, of course, hardly believe that any application of the knife, no matter how severe, can be hurtful to the tree; and such is its natural hardiness, that we must confess we have never had any evidence that any particular estate was harmed by the excessive use of the knife, except the instance brought to our attention by Mr. Bowie already mentioned. Mr. Roger, it is true, remarked that we appeared to "have sent all our tea to London, and left nothing but the roots," which looks as if in his opinion—and a casual visitor such as he was often see more than those always on the spot—the trees on most estates had not such large plucking surfaces as he was accustomed to some years ago.

An After Word.

One planter has been allowed to say a few words even after the summing up of the journalistic judge. And very interesting words they are. The following are extracts from "A. A's" letter to the *Times of Ceylon*:—

Among theories which were advanced by some father of all tea planters was one that asserted that topping a young plant checked the growth of the tap root; another, that the more wood and leaf left on the tea tree at pruning, the more favourable was the growth of the bush; another, that the growth of new wood and leaf on a heavily-pruned bush is an effort. Now I contend that a great deal of tea planting in Ceylon has been based on these theories, none of which will stand examination. An examination of a topped tea plant will show that the tap root has not ceased to grow. An examination of two sickly trees, one heavily pruned and the other lightly pruned, will show that the former has thrown off all its parasitical growth, and that the circulation of the bush has been restored—always provided that time is given for the bush to grow up again after the operation. Again, why should planters think that the growth of wood and leaf is an effort to the bush? It is indeed an effort, as it is to us to walk and run and eat. But such efforts are surely not injurious. No doubt, the ideal condition for a tea bush would be to grow unchecked. But, as we are continually checking the flow of sap by plucking, thereby causing the sap to be dissipated into many more channels than nature ever intended, so we must periodically concentrate the sap into a reasonable number of stems if we wish the circulation of the tree to flow unimpeded, and the harder the wood and the sicklier the tree, the fewer should be the channels in which the sap flows. I have for five or six years been experimenting in collar-pruning, but did not know it by that name or that it was advocated by experts. Badly planted trees have been systematically cut down below the surface, and all crowded lateral roots or redundant top roots removed, so that a new single stem could grow from a single tap root. But, in dealing with a new clearing, "E. H." is quite right in saying that all cutting down and all shaping should be done while the bush is young and adaptable. . . . Another argument for shaping the bush, while it is young: If cutting down is delayed until the bush from age, or bad treatment, has become hard and side-bound, a certain proportion will either completely die out or suffer more or less temporarily from dry rot; though the dry rot can generally be removed at the next pruning.

INDIAN AFFAIRS.

The Artificial Rupee as a Bounty against Indian Produce.

The *Times* writes:—The forthcoming instalment of evidence taken by the Currency Committee revives the question as to how far the artificially enhanced rupee acts as a bounty against Indian producers. Accurate thinkers limit the field of the enquiry to Indian produce which has to compete with the produce of rival silver-using countries. They also confine it to the special circumstances called into existence by the Government of India's artificial enhancement of the rupee, while the currency or medium of exchange in competing silver countries has been left to its natural course. It is not the rise or fall of exchange in accordance with natural causes that forms the basis of the alleged bounty against Indian produce. Whether such a rise or fall in the gold value of the rupee acts as an advantage or a disadvantage to India has, indeed, been keenly debated; and not less keenly as to how far the fall was due to an appreciation in gold and how far to a depreciation in silver. But the fall in silver proceeded from general causes, and was shared alike by India and the other silver-currency countries with which her produce competes. The fall gave no advantage to China as against India or to India against China; if the one gained or lost, so did the other, and both had equally to accept the results of economic laws.

While confining their contention within these limits, the producers in India are aware that the question as to an advantage to India from the previous general fall in the gold value of silver has been urged. But they deny its relevancy to the special situation created by the artificial enhancement of the gold value of the rupee, while the medium of exchange in competing silver countries has continued to decline in gold value under the operation of natural causes. Even if it were relevant, they are content, from the present point of view, to accept the deliberate decision of the Gold and Silver Commission in 1888 on this point. (Report, Part II., paragraphs 86, 87.) "We pass on," wrote the Commissioners, "to consider the prejudicial consequences which are alleged to have resulted from the fall in the price of Indian produce especially of wheat, both by those who attribute this fall to the appreciation of gold and by those who connect it directly with the fall in the gold price of silver. It is asserted that its effect has been to create a bounty upon the production of wheat in India, and thus to act prejudicially upon other wheat-producing countries. We do not think the term bounty is in any view properly applicable. . . . At the same time it must be admitted that the Indian producer is for the time in a somewhat more favourable position than his English competitor." The Indian producers maintain that the present situation is not one of mere advantage or disadvantage arising from natural causes of universal application, which carry with them the elements of natural readjustments, but that it is a case of an artificial bounty, created by the artificial enhancement of the rupee, and that it acts as a bounty in favour of silver-using countries whose currency or silver medium has not been tampered with. When, therefore, Lord Farrer asks in our columns, "What amount of bounty" did the previous fall in the rupee give the Indian producers, they would refer him to the Commission's report, signed by himself in 1888, that "we do not think the term bounty is in any view properly applicable" to India in the case of a fall arising out of general economic causes, and shared in common by India and the competing silver countries of the world.

If we pass from general considerations to the actual operation of the bounty against India in favour of competing silver countries, created by the artificial enhancement of the rupee, the nature of the Indian exporters' contention becomes still clearer. Lord Farrer mentioned the tea industry in particular. It is not claimed that the tea industry, or any other British industry in India, deserves exceptional consideration. All Indian industries which have to compete with silver-using countries must, it is argued, sooner or later suffer, when to the pinch of bad seasons or dull business is added the handicap of a currency bounty. But the tea industry will serve as well as another to show how the bounty acts, or is supposed to act. Broadly speaking, tea is produced, whether by India or China, in silver currency and paid for in gold currency. Down to the closing of the Indian mints in 1893 India and China competed on equal terms so far as the currency was concerned. By that time Indian tea had pretty well driven China tea out of the British market, and reduced the British consumption of Chinese teas from 114 million of pounds in 1882 to 36 millions in 1893. The first struggle was for the British market, and India and Ceylon found their energies taxed to the utmost to secure it. One thing at a time. But while Indian tea had thus captured the British market, the other countries of the world used for the most part China tea. During recent years the Indian and Ceylon planters have at a heavy expense done their utmost to invade these outside markets, and in a fair confidence of success they went on increasing their area under cultivation. On their ability to oust China tea from the markets of the world, as they have already ousted it from the British market, depends the future of the tea industry in India and Ceylon. It is a neck-to-neck competition. The Indian and Ceylon planters know that they can win in quality. The only question has been one of price, and hitherto they have been able to hold their own in that respect also. Let us see how, according to the representatives of the tea interest, the artificial rupee intervenes at this critical moment and acts on the decisive question of price.

For a sovereign's worth of tea India receives back 15 artificial rupees. For a sovereign's worth of tea China gets an amount of silver equal in weight and fineness to $22\frac{6}{7}$ rupees. "The difference between 15 and $22\frac{6}{7}$ is about 50 per cent.," runs the latest tea circular of Messrs. Gow, Wilson and Stanton. "In other words, the gold

which the Chinese trader obtains in Europe by the sale of his goods returns in silver coin about 50 per cent. in excess of what it does in India and Ceylon." This is the calculation by trade experts of the highest authority in England. But neither they nor the tea-planters believe that the bounty against Indian and in favour of China tea actually operates to the extent of 50 per cent. For although both in China and in India tea is produced by a silver currency, yet a number of secondary causes come into play. Thus the cost of producing Indian tea, although chiefly paid in silver wages, is to some extent made up of payments for machinery and European appliances of manufacture. But, allowing for all such deductions, careful investigators maintain that the artificial enhancement of the rupee acts as a bounty against Indian tea in the struggle with Chinese tea for the non-British markets of the world to something near 25 per cent., though they seem in their calculations to take no account of the higher purchasing power which the artificial rupee may be assumed to have in India merely because it is artificial.

As a matter of fact, the progress made in ousting China from the markets of the world, under the partial operation of the artificial rupee, although steady and even rapid, if we merely look to the size of the figures, has been disappointing to the sanguine people engaged in the work compared with the capture of the British market from China under the operation of the rupee at its natural value. In the largest field—the United States—hopes have not been realised, and the struggle is at this moment reaching its acute stage. It would be wrong, however, to over-estimate the effect of the currency-bounty in this respect. For that bounty is only now making itself severely felt, with the awakening of China to new life, and the rupee artificially forced up to 1*s.* 4*d.* It is correct, however, to say that the partial bounty, for some time in force, has tended to retard the extension of Indian tea as against the low-priced Chinese article. But it is rather the effect of the full bounty, with a permanent rupee at 1*s.* 4*d.* against the Chinese equivalent of the rupee at 10*d.*, to which the Indian producers look with fear. Probably sufficient account has not been taken of the rise in nominal wages which is sure to take place in China sooner or later. In time the Chinese labourer will discover that he is not receiving as much real wages as he formerly did. But it must not be forgotten that China possesses every variety of soil and climate suited for tea. Bad manufacture by the hand-process is what stands in her way, and the Consular reports show that she is taking steps to introduce the Indian system. Experiments with a machine-roller last season "proved beyond doubt," says the Shanghai trade report just issued, "that the most ordinary China tea is capable of astonishing improvements if treated by modern methods." Companies are being formed, and British capital is already aware of a new field for employment. While the Indian planter has had to struggle by lower prices to compete with the "bounty fed" China tea, Russian buyers in China have this season purchased considerably in excess and at better prices than last year. Han-kau telegrams reported that, of the first crop, Russia took 440,000 half-chests against 330,000 half-chests last season. "The prices paid for common grades are reported as much higher, and have been taken principally for Russia." A later telegram announces that the whole of the first crop in China has been settled and that the second crop is being dealt with at relatively as good prices.

Such isolated pieces of evidence are, however, of small impor compared with the general conviction of Indian producers that attempts to compete with China in the non-British markets o world are now heavily handicapped. On this conviction the En investor and the Indian planter are now taking practical ac The extension of the tea acreage in India during late years was warranted on the assumption that Indian tea can oust China the non-British markets of the world as it has ousted China the British market. But grave doubts are now felt as to wh this will be possible with the bounty created by the artificial r against India. The expectation of large new markets has shaken, and investors and planters are alike aware that it was expectations that conduced to the extension of tea-growing in I If they can be realised, the Indian tea industry is safe. If they not be realised, while the capitalist will suffer much, the coolie labourer and Indian employé will suffer still more.

THE STUDY OF FOLK-LORE IN INDIA.

MR. H. H. RISLEY, President of the Asiatic Socie Bengal, has issued a circular, from which we quote following :—

In 1891-92 a scheme for promoting the systematic study of e graphy in India, which had been prepared in consultation wit late Professor Robertson Smith and Mr. J. G. Frazer, was circu by the Government of India, and the suggestion was made Societies formed for scientific inquiries might undertake to c information sent to them. In connexion with this scheme Asiatic Society of Bengal added to their journal a third section ing with Anthropology, Ethnologoy and Folk-lore, and underto edit and publish suitable papers on these subjects. The numb papers received has, however, not been very large, and exper has shown that further organization is needed if any real pro is to be made towards the end in view. It is not enough mere invite those interested in the religious and social customs o people of India to send in for publication any information they obtain. Inquiry must be stimulated by indicating in some the manner in which it should be conducted, and simplifie directed by stating the form in which its results should be rec

The Council of the Society have accordingly resolved to cir widely the annexed set of questions which has been drawn my request by Mr. William Crooke, late of the Indian Service, the author of *The Popular Religion and Folk-L Northern India.* If persons interested in the subject will c replies to the questions and send them to the Anthropol Secretary of the Society in the form of papers or notes dealing a particular custom, belief or superstition, they will be publish the third part of the journal. It is hoped that in course of sufficient information may thus be collected to form the basi comparative study of the Folk-lore of different parts of India.

A few words of explanation may be added. Folk-lore has defined by the English Folk-lore Society as "the compariso identification of the survivals of archaic beliefs, customs and tions in modern ages." The definition marks the distinction be

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Folk-lore and the allied studies of ethnography, ethnology and anthropology, none of which are exclusively concerned with survivals. But the term 'survival,' which is of the essence of the definition, is itself relative, and in considering how researches into Folk-lore should be conducted in India, two points must be borne in mind. First, that in relation to European institutions nearly the whole body of Indian custom, usage and tradition may be regarded as a series of survivals. Secondly, that within this series are to be found usages of different age and origin, some of which may have survived or been adopted from Non-Aryan sources. The latter have, as is well known, a tendency to decline in popular estimation, and either to disappear or to be so transformed that their origin can no longer be traced. Of recent years this tendency has been increased by the spread of education and the extension of railways. It should, therefore, be one of the chief objects of the inquiry now suggested to ascertain and record the more primitive customs and to endeavour to distinguish them from those which are believed to be of Aryan origin. Particular attention should be given to those customs and beliefs which are handed down orally and are not recorded in writing.

The list of questions given is formidable, and we hesitate to allot to a subject of this kind the space that the whole list would occupy. On certain points, however, planters might give very valuable information, and we trust that some of our friends will have the kindness to deal with the following questions selected from Mr. Crooke's list :—

I.—Nature Powers.

Give any current beliefs about sun worship. How and at what periodical feasts is the worship conducted and what form of ritual is adopted?

Give any legends or customs connected with moon worship: the spots on the surface of the moon: the moon as a healer of disease: the custom of drinking the moon's rays: any ceremonies at new or full moon.

Give any legends and rites connected with eclipses.

Similarly for star worship; superstitions connected with the rainbow; the milky way.

Rites connected with worship of the earth mother: sacred things not to fall on earth: occasions when people sleep on the earth.

Superstitions connected with thunder and lightning.

Popular belief regarding earthquakes.

Collect instances of and ritual for worship of sacred rivers; springs; waterfalls; water spirits and goblins: prejudice against saving drowning people: ceremonies at digging and dedication of wells: well water as a cure for disease: instances of sacred lakes: palaces under the water.

Instances of sacred mountains and legends connected with them: dread of climbing mountains.

Name any deities supposed to control the weather, and describe the modes of causing or averting rain, of checking storms and hail.

Are there any sacred stones which are believed to influence the rain?

Note any superstitions in connection with aërolites and meteors.

II.—The Heroic Godlings.

How is the local deity of a new settlement selected and installed?

What local deity is considered responsible for crops and cattle? When and how is he worshipped?

III.—Disease Deities.

Describe the worship of any deities who are believed to have the power of averting or causing disease, such as cholera, small-pox, fever, etc.

Is epidemic disease attributed to witchcraft, and, if so, what precautions are taken? Give particulars of observances in connection with cattle disease.

What methods are in vogue for the exorcism of disease? Give examples of any rural charms used for this purpose.

IV.—The Worship of Ancestors and Saints.

Give instances of worship of ancestors: the belief that spirits are mortal and that the spirits of the dead are re-born in children.

V.—The Worship of the Malevolent Dead.

Is it considered possible for the soul to leave the body temporarily? If so, give instances.

What is the popular conception of the character and functions of the Bhút or disembodied soul?

Does any special class of evil spirit infest mountains, jungles, trees?

VI.—The Evil Eye and the Scaring of Ghosts.

Describe the belief in the evil eye and the modes of evading it.

Does the belief in giving opprobrious names to children prevail, and if so, how is it accounted for?

Illustrate the belief in tree spirits.

What spirits are special protectors of crops and cattle?

VII.—Tree and Serpent Worship.

Name any sacred groves in your neighbourhood and describe any prejudice against cutting trees?

Are any trees specially connected with any local deity or saint?

Name any trees which receive particular respect or devotion, and note any legends or superstitions in connection with them.

Does the custom of marrying a bride or bridegroom to a tree prevail? Any instances of marriage to a god: religious prostitution?

Give instances of snake worship and shrines of serpent deities: of deified snake heroes.

VIII.—Totemism and Fetishism.

Can you quote any beliefs which are suggestive of Totemism? Are any clans named after or do they claim descent from animals or plants? What animals are treated with special respect by particular tribes? Do special castes refuse to eat any special food?

Are any local deities specially associated with animal worship?

Illustrate the worship of stocks and stones. Is any respect shown to perforated stones?

Is special respect shown to the corn sieve, the winnowing basket, the broom, the rice pounder, the plough?

IX.—Animal Worship.

Illustrate from local examples the worship or respect paid to the horse, ass, lion, tiger, dog, goat, cow, buffalo, antelope, elephant, cat, rat and mouse, squirrel, bear, jackal, hare, crow, fowl, dove and pigeon, swan, and other birds, alligators, fish and insects, and give any legend or superstition in connection with them.

X.—Witchcraft.

How far does the belief in witches and their powers prevail? Do they appear as animals and have they special haunts and seasons?

What ordeals are used to test a witch and what means to guard against her witchcraft?

XI.—General.

Describe the rural ceremonies in connection with ploughing, sowing the various crops, reaping and harvesting.

Rites intended for the protection of cattle: to ensure sunshine and favourable weather: to scare noxious animals or insects: to protect special crops: illustrate these from local custom.

Are there any rites in which secrecy and silence are essential?

Describe the observances at the Holi.

Give details of any rites performed when boys or girls attain puberty.

DISTRICT ASSOCIATION.

KANAN DEVAN PLANTERS' ASSOCIATION.

Minutes of a Quarterly General Meeting held at Munnar on 27th August, 1898.

Present.—Messrs. H. S. Buist, R. Hedger, A. H. Mead, R. F. Russell, W. D. Martin, J. Sealy, Dr. G. L. Kerr, G. N. Thomson, J. Hamilton Hunter, W. Milne, H. M. Knight, A. D. Cameron, Baron J. vonRosenberg (*Chairman*), A. H. Sharp (*Hon. Sec.*), J. A. Hunter, C. Burn Murdoch.

Notice calling the meeting was taken as read.

Read and *confirmed* minutes of last meeting.

Kotagudi Ghat Road.

Read letter from Messrs. Finlay, Muir and Co., Calcutta, stating that they had agreed to pay one-fourth of the cost of the Bodinaiakanur-Kotagudi Road. *Recorded.*

Bodinaiakanur Bungalow.

Proposed by Mr. Knight, and *seconded* by Mr. Milne, that the Association do agree to take over the land bought by the Committee through Mr. Davidson and pay the cost of the bungalow and outbuildings. That the land on which the store belonging to the Kanan Devan Mills Produce Co., Ld., stands be leased to the Company at a rent of Rs.50 per annum in perpetuity, and that Messrs. Finlay, Muir & Co. be asked to hold the land as trustees for the benefit of the Kanan Devan Planters' Association. *Carried.*

Proposed by Mr. Knight, and *seconded* by Mr. Sharp, that the land

and buildings belonging to the Association at Bodinaiakanur be offered to the members not belonging to the Kanan Devan Mills Produce Co., Ld., at an upset price of Rs.1,000. *Carried.*

Proposed by Baron von Rosenberg that the cost of erection of the bungalow and purchase of land be raised by an assessment on cleared acreage. *Seconded* by Mr. Hedger and *carried.*

TELEGRAPH STATION.

Read letter from Messrs. Finlay, Muir & Co., Calcutta, stating that they had given the guarantee of Rs.2,230 per annum for a period of five years to include the two Telegraph Stations at Devikulam and Munnar.

Proposed by Mr. Sharp, and *seconded* by Mr. Knight, that this Association confirms this guarantee. *Carried.*

PERIAKANAL ARRACK SHOP.

Proposed by Mr. Thomson, and *seconded* by Mr. Knight, that this Association considers it desirable to have the Arrack Shop at Periakanal closed on account of its isolated position and the temptation it offers to transport coolies between Bodinaiakanur and Munnar wasting time there, and the drunken rows that frequently occur there. *Carried.*

MEDICAL GRANT.

Proposed by Mr. Knight, and *seconded* by Mr. Sharp, that the present medical grant from Government be equally divided between the dispensaries at Munnar, Sothapara, Yellapathi and Periakanal. Dispensaries to be in charge of the Superintendent of the estate on which the dispensary is situated, who will keep all necessary records. *Carried.*

Proposed by Mr. Knight, and *seconded* by Mr. J. Hamilton Hunter, that the rates at which rice is issued to coolies in different parts of the district be ruled by the Association. That 14 annas be the maximum weekly issue to a male adult for six days' work on check-roll and 10 annas for women. To be proportionally reduced for fewer days' work. This, however, does not apply to coolies free of debt. *Carried.*

Proposed by Mr. Knight, and *seconded* by Mr. Milne, that a Plague Committee be appointed consisting of Messrs. Hickey, J. A. Hunter, G. N. Thomson, Dr. Kerr and the District Magistrate.

Papers laid on the table:—

No. 494 / 25-6-98, District Board, Madura, *re* Bodi Ghat Road.

No. 3041 C / 2-7-98, Public Works Department, Madras, *re* Talliar-Chinnar Road.

Report of the President, District Board, Madura, on the insanitary condition of Bodinaiakanur.

Letter from Assistant Superintendent of Police, Kottayam.

The meeting closed with a vote of thanks to the Chair.

A. H. SHARP,
Honorary Secretary.

MARKET REPORT.

COFFEE.

Messrs. Wm. Jas. and Hy. Thompson's Report of the Colonial Markets for the Fortnight ending August 17th, 1898, says:—The improved demand reported in our last has been maintained throughout the past week, and values of all kinds have ruled very steady, colory Colombian and Plantation Ceylon being again dearer. The small quantity of Neilgherry offered sold with difficulty at about steady prices.

Futures close very steady, about 3d. lower, after fluctuations, viz.:—Good average Santos in Havre, September delivery, fcs. 37.00, in Hamburg pf. 30½, and No. 7 low ordinary Rio in New York $5.55.

To-day's London official quotations are:—

	Sept.	Oct.	Dec.	Mar., '99.	May.
SANTOS ...	29/9	30/–	30/6	31/3	31/9

We quote:—

Ceylon, mid. to good mid.	101/	@108/	
Do. small to low mid.	79/	„ 99/	
East India, mid. to good mid...	70/	„ 92/	
Do. small to low mid.	58/	„ 72/	
Guatemala, mid. to fine...	66/	„ 98/	
Do. good ord. to low mid...	50/	„ 64/	
Salvador, good ord. foxy greenish...	38/	„ 42/	
Costa Rica, mid. to fine...	69/	@104/	
Do. ord. to low middling.	37/	„ 65/	
Jamaica, good to fine ord.	32/	„ 48/	
Do. greenish to fine colory...	65/	„ 120/	
African ...	26/	„ 29/	
Columbian, ordinary ...	36/	„ 43/	
Do. good ord. to low mid...	42/	„ 63/	
Do. mid. to fine...	64/	„ 98/	

Receipts in Brazil to 17th August compare as follows with pre years:—

	1898-99.	1897-98.	1896-97
	Bags.	Bags.	Bags.
RIO	427,000	696,000	530,000
SANTOS	851,000	1,121,000	817,000
	1,278,000	1,817,000	1,347,000

Messrs. R. J. Rouse & Co say on their Weekly Coffee Report (Augus 1898)—Large supplies at auction consisting chiefly of Central Ame kinds met with a better demand, medium qualities realising fi rates, while desirable and colory kinds sold at an advance of a 1/- to 3/- per cwt.

Plantation Ceylon sold freely at full prices.

About 300 bags East India, chiefly ordinary faded, were catalogue sold at previous rates.

Futures.—The deficiency in the receipts at the Brazilian ports conti to increase and now amounts to over 550,000 bags since the begin of the season, compared with the same period last year. This, toge with the firm attitude maintained by the Brazilians, has imported a b tone to the market, and prices are rather dearer.

From London advices of 19th ultimo we gather the following:—

Of Coffee supplies have continued restricted, and have consisted al entirely of Central American descriptions, chiefly unattractive qua but with a good steady demand nearly everything offered has disposed of at firm prices to an occasional advance of 1s. per cwt. coloury Coffees are again rather dearer, and Plantation Ceylon has readily at extreme rates. "Futures" are again rather dearer; average Santos is quoted at 29s. 9d. for August, 30s. September, 30s October, and 31s. 6d. March.

In East India there has been rather more enquiry privately. Jan remains neglected. Futures have been steady, and prices close wit material alteration, except for distant positions which have adva owing to estimates of the new crop being from 25 to 30 per cent. l than the current one; closing rates are:—

London	...Santos	...September delivery	...	30s. 0d.
New York	...No. 7 Rio	... „	„ ...	5.55 cents.
Hamburg	...Santos	... „	„ ...	31 pf.
Havre	...Santos	... „	„ ...	37¾ francs.
Holland	...Good ordinary Java	...	...	37¼ cents.

Imports Deliveries and Stock of Coffee in London are as follows:—

		STOCK.		IMPORTS.	
		1898.	1897.	1898.	189
West India	... tons	526	425	1,570	7
Ceylon	... „	129	127	240	3
East India	... „	2,227	2,384	5,425	5,0
Mocha	... „	547	453	602	4
Brazil	... „	3,250	2,099	2,439	1,4
Other Foreign	... „	12,827	7,465	24,983	19,3
Total	... „	19,506	12,953	35,259	27,3

		HOME CONSUMPTION.		EXPORT.	
		1898.	1897.	1898.	189
West India	... tons	252	231	1,129	4
Ceylon	... „	100	109	121	2
East India	... „	1,723	1,516	2,581	1,9
Mocha	... „	453	340	101	1
Brazil	... „	650	797	1,510	1,7
Other Foreign	... „	6,004	6,146	10,822	8,8
Total	... „	9,182	9,139	16,264	13,3

The preceding figures exhibit—

In the imports an increase this year of	7,876	tons.
Home Consumption an increase of	43	„
Export an increase of ...	2,921	„
Stock an increase of ...	6,553	„

Auctions this week have gone off as under:—

CEYLON.—*Plantation.*—38 casks 12 tierces 22 barrels 8 bags sold, tr 40s to 52s, smalls 52s to 98s, low middling dull gray 92s 6d, good midd 106s to 109s, fine middling and fine 112s to 115s, good bold 115s to pea-berry 82s to 125s.

JAMAICA.—74 barrels bought in.

COSTA RICA.—2,097 bags sold, triage 29s to 29s 6d, smalls 31s to 39s, dinary dull brownish 38s 6d to 39s 6d, good ordinary 41s 6d, fine dinary 44s to 48s 6d fine lime ordinary to low middling pale greenish 0s 6d to 62s, pea-berry 45s 6d to 50s 6d. London-cleaned, small 3d, ood colory 90s, bold 93s, pea-berry 71s to 87s 6d.

GUATEMALA.—1,012 bags mostly sold, triage 29s; London-cleaned, smalls 3s to 51s, fine fine ordinary 53s 6d, mixed dull soft greenish to low iddling 55s to 58s, middling dull greenish 63s to 68s, good middling to oldish 70s to 80s, good colory 84s, good bold 91s, pea-berry 61s to 93s 6d.

COLOMBIAN.—3,342 bags nearly all sold—triage 20s 6d, ordinary dull ale 38s 6d to 39s 6d, good ordinary sea-damaged 42s to 44s 6d, fine rdinary 46s 6d to 49s 6d, fine fine ordinary to low middling 53s to 2s 6d; London-cleaned, smalls 25s 6d to 48s, damaged and soft mixed ed 48s to 59s, middling greenish colory 66s 6d to 71s 6d, good middling nd bold 74s to 84s, good bold 91s, pea-berry 60s to 86s 6d.

Receipts in Rio and Santos.

	1898-9.	1897-8.	1896-7.	1895-6.
Aug. 17—	Bags.	Bags.	Bags.	Bags.
Rio ...	15,000	23,000	11,000	16,000
Santos	30,000	46,000	20,000	18,000
Total 5 days				
Rio ...	62,000	119,000	47,000	56,000
Santos	95,000	156,000	76,000	107,000
	157,000	275,000	123,000	163,000
Since July 1				
Rio ...	442,000	719,000	541,000	370,000
Santos	881,000	1,167,000	837,000	518,000
Total	1,323,000	1,886,000	1,378,000	888,000
Crop ...	—	10,461,000	8,680,000	5,489,000

Exchange $7\frac{5}{16}$d. previous day $7\frac{5}{16}$d.

Havre, August 18.—Market steady. Santos good average September opened at $37\frac{1}{4}$f and closed at $37\frac{3}{4}$f, December opened at $37\frac{3}{4}$f and closed at $38\frac{1}{4}$f.

Hamburg, August 18.—Good average Santos September opened at $30\frac{1}{2}$m. and closed at $30\frac{1}{2}$m.

New York, August 17.—Closing prices of No. 7 Rio were as follow:—

	Aug.	Sept.	Oct.	Nov.	Dec.
Aug. 17 ...	5.55	5.55	5.55	5.60	5.75
Aug. 16 ...	5.55	5.55	5.55	5.60	5.80

August 19.—Only one catalogue was issued to-day comprising:—246 bags Guatemala, 201 bags Costa Rica, 377 bags Colombian, 127 bags Mexican, 320 bags Salvador, 192 bags Nicaragua, and 30 bags St. Domingo. A flat market. Auction passed off quietly. One or two parcels previously offered at auction were bought in. What sold realized former rates.

TO-DAY'S HAVRE & HAMBURG COFFEE TERMINAL QUOTATIONS.

(*Communicated by Mr. Edward Nauen.*)

	Havre.			Hamburg.	
	10.15 a.m.	12 noon	3.30 p.m.	10.25 a.m.	2.10 p.m.
Sept., 1898...	$37\frac{1}{2}$	$37\frac{1}{2}$	$37\frac{1}{2}$	31	31
Dec.....	38	38	38	$31\frac{1}{2}$	$31\frac{1}{2}$
March, 1899...	$38\frac{1}{2}$	$38\frac{1}{2}$	$38\frac{1}{2}$	32	$31\frac{3}{4}$
May.....	$38\frac{3}{4}$	$38\frac{3}{4}$	$38\frac{3}{4}$	$32\frac{1}{2}$	$32\frac{1}{4}$
	Quiet. Buyers.	Quiet. Sellers.	Quiet. Sellers.	Steady. Value.	Quiet. Buyers.

PEPPER.

London advices dated 19th August, 1898, state:—

Black.—The market is firm but quiet, and business has been limited this week. About 200 tons have been sold—at $4\frac{13}{16}$d for fair on the spot, at 5d for July-September shipment, and $5\frac{1}{16}$d to $5\frac{1}{8}$d September-November.

The shipments of Black Pepper for the first half of August compare as follows:—

		1898.		1897.
U.K.—Singapore	340	340	250	250
,, Penang	*nil*		*nil*	
Continent		100		140
U.S.		225		20
Total tons...		665		410

At auction on the 17th inst. only 25 bags good fair brown Tellicherry were offered, and these sold at $4\frac{1}{2}$d per lb.

White is also firm but quiet. 100 tons have been sold, including Singapore September-November and October-December shipment at $8\frac{15}{16}$d, Penang on the spot at $7\frac{1}{2}$d to $7\frac{3}{4}$d, October-December shipment at 8d, and November-January at $8\frac{1}{16}$d.

The shipments of White Pepper for the first half of August compare as follows:—

		1898.		1897.
U.K.—Singapore	300	370	60	80
,, Penang	70		20	
Continent		50		*nil*
Total tons...		420		80

At public sale on Wednesday 32 bags Singapore sold—fine $9\frac{1}{4}$d to $9\frac{3}{8}$d, good brownish mixed small $8\frac{3}{4}$d. 15 bags fair Penang realised $7\frac{11}{16}$d. 7 bags Ceylon retired at 9d per lb.

August 19.—Black quiet and sales unimportant. Singapore Sept.-Nov. shipment $5\frac{1}{8}$d sellers.

Of White 40 tons Penang Oct.-Nov. and Nov.-Jan. shipment sold at $7\frac{7}{8}$d per lb.

BOARD OF TRADE RETURNS.

The following tables shew the Imports, Consumption, and Exports of the undermentioned articles for the seven months ending 31st July in the present and two previous years, compiled from the Board of Trade Returns, with stock in U.K. on 31st July:—

COFFEE—	1896.	1897.	1898.
Import.....cwts.	525,824	611,408	742,500
Home Consumption.... ,,	146,686	149,293	154,939
Export..... ,,	299,783	258,302	334,967
Stock..... ,,	219,000	294,000	466,000
TEA—	1896.	1897.	1898.
Import .....lbs.	114,171,821	118,843,335	117,097,557
Home Consumption..... ,,	129,025,267	132,655,436	135,660,455
Export ..... ,,	17,406,482	21,948,215	20,170,591
Stock..... ,,	67,261,000	65,280,000	62,230,000

CINCHONA.

The Monthly Public Sales of Bark.

Auctions on Tuesday the 16th ultimo summed to 1,819 packages, distributed among nine catalogues. For all, except the South American, there was a very good demand, and the bulk of the offerings found buyers at last sales' rates, the unit value again averaging about $\frac{15}{16}$d.

Of *South American*, 482 bales were catalogued and 250 bales sold—Bolivian cultivated Calisaya quill $4\frac{1}{4}$d to 6d, flat country-damaged 5d per lb.

Of 117 bales *Ceylon Cinchona* offered 90 bales sold—Succirubra, chips $1\frac{3}{4}$d to $2\frac{1}{8}$d, ditto renewed $2\frac{1}{4}$d to 3d per lb.

Of 983 packages *East India Cinchona* brought forward about 660 pkgs. sold—Officinalis, quilly chips $4\frac{1}{2}$d to $5\frac{1}{4}$d, chips and shavings $1\frac{1}{2}$d to $2\frac{5}{4}$d, ditto renewed $2\frac{3}{4}$d to $4\frac{1}{2}$d; Red, chips and shavings $2\frac{1}{4}$d to $2\frac{3}{4}$d, ditto renewed $2\frac{1}{4}$d to $2\frac{3}{4}$d, broken quill $2\frac{3}{8}$d to $3\frac{5}{8}$d, root $4\frac{3}{8}$d; Ledgeriana, chips $3\frac{1}{2}$d to 5d, branch $2\frac{3}{4}$d per lb.

132 bags *Java Cinchona* sold—Ledgeriana, chips $3\frac{1}{2}$d, chips and root $2\frac{1}{2}$d to $2\frac{3}{4}$d, branch $2\frac{1}{2}$d to $2\frac{3}{4}$d per lb.

102 bales *African Cinchona* sold—Succirubra, quill and chips $3\frac{3}{4}$d to 4d per lb.

QUININE.

London advices of 19th ultimo state:—

SULPHATE OF QUININE is lower, with sales of HB or B&S at $9\frac{3}{4}$d per oz.

OFFICIAL QUOTATIONS.

Sulphate of Quinine—	*in tins.*	*in 1 oz. vials.*
Howards & Sons.....	1s 0d to 0s 0d	1s 2d @ 0s 0d
Thomas Whiffen.....	0s 10d ,, 0s 0d	1s 0d ,, 0s 0d
Brunswick.....	0s 10d ,, 0s 0d	
Mannheim.....	0s 10d ,, 0s 0d	
Auerbach.....	0s 10d ,, 0s 0d	
Zimmer Jobst.....	0s 10d ,, 0s 0d	
Milan	0s 0d ,, 0s 0d	0s 0d ,, 0s 0d
Taillandier.....	0s $9\frac{3}{4}$d ,, 0s 0d	
Amsterdam	0s 0d ,, 0s 0d	
Pelletier's	0s 0d ,, 0s 0d	1s 5d ,, 0s 0d

CARDAMOMS.

At the auctions in London on 18th ult. a good supply of Cardamoms was brought forward and a fair clearance effected; the few "stand out" lots realised over valuations, whilst the dull bold, medium and small qualities were about 2d to 3d per lb. cheaper.

Catalogues offered 367 cases, of which 280 cases found buyers as follows:—Mysore @ Ceylon, extra fine bold pale plump bleached 4s 1d, bold 3s 4d to 3s 5d, medium 2s 11d to 3s 2d, and small 2s 8d; extra bold palish 3s 5d to 3s 6d, bold 2s 10d to 3s 1d, medium 2s 4d to 2s 7d, smalls 2s to 2s 4d; bold plump round pale 3s 1d to 3s 2d, medium 2s 4d to 2s 6d, small 2s 1d; bold long lean 2s 8d, medium ditto 1s 10d; good bold brownish 2s 7d to 2s 8d, medium 2s 3d, very small 1s 11d; medium bold palish 2s 5d to 2s 6d, medium 2s 4d; dull bold and medium lean, slightly mouldy, 2s 3d to 2s 4d, small and medium 2s; Malabar @ Ceylon, ordinary brown and lean 2s; open pickings 2s 7d for fine, 1s 11d to 2s 2d for good, and 1s 6d to 1s 8d for common; seeds, fair 2s 10d, ordinary 2s 7d, odd lots 2s per lb.

TEA.

Messrs. Gow, Wilson and Stanton's Indian, Ceylon, and Java Report, dated August 12th, 1898, says :—

QUANTITY BROUGHT TO AUCTION IN LONDON

FROM 1ST JUNE TO DATE.

	Indian.	Ceylon.	Java.
1898-1899...	115,917 packages.	251,861 packages.	8,049 packages.
1897-1898...	111,509 ,,	281,052 ,,	10,203 ,,

26,643 *pkgs.* INDIAN
41,210 ,, CEYLON
1,437 ,, JAVA
} Total 69,140 packages were offered in public auction this week.

Duty payments from the 1st January to the end of July show an increase, especially noticeable in Indian Teas. Re-exports of both Indian and Ceylon Teas are encouraging.

Quantity of Tea (in lb.) on which Duty was paid at all Bonded Warehouses in the Kingdom from 1st January to 31st July.

	1898.	pctgs.	1897.	pctgs.	1896.	pctgs.	1895.	pctgs.
Indian ...	76,127,862	56	71,852,593	54	70,162,579	54	64,062,594	50
Ceylon ...	48,079,216	36	48,223,876	36	44,883,290	35	42,875,335	34
China ...	8,688,588	6	10,452,219	8	11,228,204	9	16,789,384	13
Other Countries	2,764,789	2	2,126,748	2	2,751,194	2	3,483,403	3
Total lb. ...	135,660,455		132,655,436		129,025,267		127,210,716	

Indian and Ceylon Tea (in lb.) exported from Great Britain from 1st January to 31st July.

	1898.	1897.	1896.	1895.
Indian ...	3,759,971	3,022,638	1,856,770	2,018,004
Ceylon ...	6,597,202	6,065,701	4,512,202	3,968,709

Indian. Auctions comprised 26,643 packages, a sufficient quantity to afford some test of the strength of the market. Demand was good for all descriptions, while anything with special point in liquor commanded rather better prices. High class Teas sold with strong demand, especially some of improved quality from Assam and Darjeeling.

Ceylon. The auction of 41,210 packages was slightly less than the corresponding sale after the Bank Holiday last year. The fortnight's interval has resulted in strengthening the demand, prices for all grades being fully maintained with a distinctly firmer tendency.

The new plan of dividing large sales between Tuesday and Wednesday came into operation this week for the first time and worked admirably. Although 1,296 breaks were represented, buyers had time to give thorough attention to the various samples. Averages :—"Associated T. Co., Silver Kandy," Dimbula Valley D," and "Holmwood," 1/–.

Average for the week is 7·44*d.*, against rather under 7½*d.* last year.

Java. 1,437 packages were brought forward, all of direct import, the Teas being nearly all sold in the room at steady prices. 106 packages from "Perbawattee" averaged 10¼*d.* per lb.

THE AUSTRALIAN MARKET.

Australian advices dated 12th August report as follows :—

SYDNEY.—Private cables have been received from Colombo to the effect that the market there has advanced 7½ per cent. This caused some excitement among teamen, and there was no disposition to unload stocks of Ceylon leaf, which by the way are not heavy just at present. Twenty half chests of Ceylon broken pekoe sold at 7½d. Chinas moved off slowly at market rates.

MELBOURNE.—A catalogue of 341 chests and 86 half-chests Ceylon ex "Arcadia," was offered at auction this afternoon. There was a demand at firm prices, and the common grades especially sold Sales amounted to 309 chests and 61 half-chests, as follows :—Br orange pekoe, 10½d. ; orange pekoe, 8d. ; broken pekoe, 103 chests, at to 8d. ; pekoe, 70 chests, at 6d. to 6½d. ; pekoe souchong, 94 chests a half-chests, at 5¼d. to 7¼d. ; fannings, at 4d. to 5¾d. ; and dust, at Privately the sales which have been made include 150 packages Ceylo 6d. to 7d. There is a very good demand for common teas.

ADELAIDE.—Sales of Ceylon teas have been making pretty freely, the parcels are small.

Messrs. Alfred Harvey & Co state in their Monthly Tea Report, d Melbourne, August 17th :—

GENERAL.

Shipments from all ports are 7,960,000 lb., as against 7,927,253 lb same time last year.

The *Orissa* from Calcutta is due now, although the quantity shi for this market is only 48,000 lb.

Latest advices show that there has been more active buying Australia ; we, therefore, expect a good assortment within the next t weeks.

Ceylons have continued to be well represented, and the demand gr stronger. Prices have been full in consequence ; more especially extreme rates paid for all the lower grades. The selection has been varied, a lot of the better teas proving very attractive.

There is no improvement in the scented market, Kooloos remai unchanged, and scented orange pekoes are sold at rates that prove u unsatisfactory to importers. The market closes very strong for all up to 6½d., with a good demand for almost all grades.

Stocks in bond on the 6th August were 1,241,485 lb.

CEYLON.

Shipments from Colombo are 5,000,000 lb., as against 4,000,000 lb same time last year.

With the exception of one catalogue printed on the 12th instant, whole of the arrivals have been sold privately. At auction, dust, fannings sold at 4d. to 4½d. ; fine quality, 5½d. ; common red leaf chongs, 5¼d. to 5½d. ; rough leaf pekoe souchong, 5¾d. to 6¾d. ; fine pekoes, 6½d. to 7½d. ; fine to choice quality, 8d. to 10½d. These pr show a distinctly quotable advance of from ¼d. to ½d. per lb. upon month's rates. The weight of leaf on the water is reported to be hea than usual.

Stocks in bond on the 6th August were 396,884 lb.

CALCUTTA SALES.

Messrs. W. S. Cresswell and Co's Tea Report, dated Friday, Septembe says :—

At to-day's sales 21,066 packages were catalogued, out of which 1, were withdrawn for higher prices, and 542 did not arrive in time for s

The quality of the teas generally on offer was again poor, and in onl very few instances could improvement be traced against last invoices so some of the Assams, however, were of slightly better quality, and all p sessing this qualification were keenly competed for.

Teas from Sylhet, Cachar, Duars, and Darjeeling were decidedly poor, all low medium grades again showed an easier tendency.

The Darjeelings catalogued lacked point and flavour, and in most instan were withdrawn form sale owing to the prices bid being below sell limits.

Common leaf grades were firm, and bidding was brisk at about sale's rates.

Exchange—Closes at 1/4-3/32.

PUBLIC SALES OF SOUTH INDIAN TEA.

(AVERAGE FOR ALL INDIA 9*d.*) *August 12th.*

GARDEN.	Total.	Average.	Broken Org. Pek. or Flowery Pekoe.		Pekoe and Unassorted.		Broken Pekoe.		Pekoe Souchong.		Broken and Souchong.		Fannings, Du and Various	
	Quantity	Price.	Quantity	Price.	Quantity	Price.	Quantity	Price.	Quantity	Price.	Quantity	Price.	Quantity	Pric
Travancore ...	**253**	**6·04**												
Elderslie ...	70	5½	...	...	30	5¼	20	6¼	20	4¾	...	...	...	...
Isfield T Co ...	63	6¼	...	...	27	5¾	36	6⅜	...	...	...	...	...	...
Vembenard ...	120	6¼	...	...	42	5¾ 6	59	6⅜	10	5½	...	...	9	5¼

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PLANTING OPINION.

A WEEKLY JOURNAL

WRITTEN BY PLANTERS FOR PLANTERS.

VOL. III.] MADRAS, SATURDAY, SEPTEMBER 17, 1898. [No. 37.

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DOMESTIC OCCURRENCE.—The fee for inserting a domestic occurrence will be *One Rupee* for each insertion, payable in advance.

N. B.—Remittances should be sent to E. C. Duff & Co., Proprietors, "Planting Opinion," 11/12, Second Line Beach, Madras.

IMPORTANT NOTICE.

The Offices of this paper having now been removed to Madras, all remittances should be made payable to E. C. Duff & Co., Proprietors, *Planting Opinion*, 11 and 12, Second Line Beach, Madras, who will also attend to all advertisements, &c.

Letters to the Editor should also be addressed to the Madras Office.

SEASON REPORTS.

TO OUR SEASON REPORTERS.

Please post your next reports to reach Madras on Friday, the 23rd September, 1898.

Season Reports should be sent to the Printers, Messrs. ADDISON & Co., direct, and not to *Planting Opinion* Office.

Coorg.

POLLI BETTA, 15*th Sept.*—*Weather.*—Rain continuous till Monday inclusive. Heavy on that day. Signs of the monsoon breaking up since Tuesday. *Plant-diseases.*—Leaf-disease getting worse in parts. Price of grains continues high. *Health.*—Good. *Labour.*—Plentiful.

OLD TEA LEAVES.

A RECENT writer in a Colombo contemporary has erred in his attempt to state the time when, "according to old record," the introduction of Tea into England "appears to have taken place." He states that this was in 1666, when Lord ARLINGTON and Lord OSSORY brought over a small quantity from Holland, and the custom of drinking it became "fashionable." The date here given is, however, some years too late, for good old PEPYS jotted down in his diary on 25th September, 1660:—"I did send for a cup of *tee* (a China drink, of which I had never drank before)." In the same year, too, by Act II. of Charles II., chh. 23 and 24, a duty of 18*d.* was imposed on every gallon of chocolate, sherbet, and tea, made for sale; coffee being charged only 4*d.* In 1664 the East India Company purchased 2lb. of tea and presented it to the King, and in 1666 a larger present of $23\frac{2}{3}$lb. was made. An old shop bill, quoted by the writer already referred to, proves that tea dates further back into the past than 1666. THOMAS GALWAY, of Exchange Alley, tobacconist and coffee man,

claimed to have been the first to retail tea, and in his shop bill we find this statement :—"Tea in England have been sold in the leaf for six pounds, and sometimes for ten pounds the pound weight, and in respect of its former scarceness and dearness have been only used as a regalia in high treatments and entertainments, and presents made thereof to princes and grandies till the year 1657. The said GALWAY did purchase a quantity thereof, and first publicly sold the said tea in *leaf* or *drink* made according to the directions of the most knowing merchants in those Eastern countries. On the knowledge of the said GALWAY's continued care and industry in obtaining the best tea and making drink thereof, very many noblemen, physicians, merchants, etc., have ever since sent to him for the said leaf, and daily resort to his house to drink the drink thereof. He sells tea from 16*s.* to 50*s.* a pound." This brings us back to 1657, therefore, and from PEPYS' note, and the taxation imposed in 1660, it is safe to assume that tea had already begun to become fashionable by that time. That a present of this herb was highly esteemed as long ago as 1664 is shown by the following extract from the earlier "Court Books" of the old East India Company:—"22*nd August* 1664.—The Governour acquainting ye Court that ye Factors haveing in every place failed ye Company of such things as they writt for to have presented his majestie with and that his matie might not finde himself wholly neglected by ye Company he was of opinion if ye Court thinck fitt that a silver case of oile of cinnamon which is to be had of Mr. Thomas Winter for £75, and some good Thea, be provided for that end, which he hopes may be acceptable, ye Court approved very well thereof." This entry refers to the present of 2lb. of tea made to CHARLES II. in 1664. Then on 3rd July, 1666 :—"The Court now left itt to the governour and deputie to dispose of the value of about £10 in Thea to some gentlemen where they see reason to place itt." And advancing some years, we find the Directors writing to Madras on 13th February, 1684/5 :—"In regard Thea is grown to be a commoditie here, and we have occasion to make presents therein to our great friends at Court, we would have you send us yearly five or six canisters of the very best and freshest Thea; that which will colour the water in which it is infused most of a greenish complexion is generally best accepted." The first importation *from Holland* is reported to have occurred in 1666, while the Company's first importations of tea, direct from Bantam, are said to have been received in 1669. In 1671, it may be observed, the stock of "Thea" held by JOHN COMPANY was valued at 20*s.* per lb. The earliest mention of Tea in the East India Company's records is made in a letter from RICHARD WICKHAM, the Company's Factor at Firando, in a letter dated 27th June, 1615, to Mr. EATON at Miaco. He asks for "a pot of the best sort of chaw."

That Tea was in good demand in the first century of its introduction into England, is very clear. It sold at times at 60*s.* a pound, and we find it recorded that the Swedish Company, which obtained a charter in 1731, "was supported chiefly by smuggling tea" into Great Britain, until the British Parliament in 1784 lowered the tax on tea, when the Swedish Company was immediately annihilated. In 1771 it was stated that the Duke of NORTHUMBERLAND had a tea-tree in full flower—the first that ever flowered in Europe. It was then remarked :—"This shrub grows from cuttings like a willow, and probably it will prove hardy enough for the open air with us; if so, as it is a very quick grower, we may soon have tea of our own production, and save so our silver." These hopes were, luckily for India, dest to be disappointed. It was asserted about that time no tea-plants had yet died in England through excess of but writing in 1772 an observer remarked :—"An exa of the contrary I know has happened." He added :—" plant in the princess dowager's garden at Kew flouri under glass-windows, with the natural heat of the su well as those at Mile-end in the possession of the indefa ble J. Gordon. Two of the tea-plants belonging to Fothergill thrive in his garden at Upton, exposed to open air in Summer."

Even in those early days, too, tales had got about Tea was harmful to the health of the drinker. Among old leaves in our pot we find these :—"The long and stant use, as a part of our diet, makes us forget to enq whether it is possessed of any medicinal qualities." " generality of healthy persons find themselves not appare affected by the use of tea. It seems to them a gra refreshment, both fitting them for labour and refres them after it. There are instances of persons who drunk it from their infancy to old age; have led, at same time, active, if not laborious lives; and who n perceived from the constant use of it any ill-effect, nor any complaint which they could ascribe to the effects of liquor." But the critic thought this was due to the stre of the drinkers rather than the innocence of the tea! S among the less hardy and robust, he says, "complain after a tea-breakfast, they find themselves rather flutte their hands less steady in writing, or any other employ requires an exact command." Others could bear well enough in the morning, but not in the aftern Some after drinking a single dish were "immediately and disordered at the stomach." But it was acknowle by even this harsh critic that "in general the most te and delicate constitutions are most affected by the free of tea." He admitted, too, "that it enlivens, refres exhilerates." The finer the tea, he observed, the obvious are its effects, and in another place we read :—" if not too fine, if not drunk too hot, not in too great q tities, is perhaps preferable to any other vegetable infu we know." He had often regretted, indeed, that tea sh be found to possess any pernicious qualities "as the plea which arises from reflecting how many millions of our fel creatures are enjoying at one hour the same amusing re the occasions it furnishes for agreeable conversation, innocent parties of both sexes it daily draws together, entertains without the aid of spirituous liquors, would af the most grateful sensations to a social breast." So it in 1772, so it is still, and we pick out yet one more which, old though it is, is still fresh. It tells us that " attachment to tea is not merely from its being costl fashionable, but from its superiority in taste and effect most other vegetables." "Old Tea leaves" of that sort always "draw" without any admixture of carbonate of s

MR. ACWORTH ON THE CURRENCY QUESTI

ELSEWHERE we give the text of Mr. G. L. Acwo evidence during his examination before the Indian Curr Committee. This reached us too late to permit of reviewing it, but we note that our contemporary, the *Ma*

ail, thinks that Mr. Acworth "acquitted himself very editably in his representation of planting interests," but at in the supremely important matter of "ways and eans," "his evidence appears to us to be wanting in ecision and force." It is, says our contemporary, "an iom that if the mints are re-opened the increased cost to e State of fulfilling its sterling obligations must be met by creased taxation." According to Mr. Acworth's own owing, in the written statement that he submitted to the ommittee, a loss of about 15 crores would have to be made od. The loss may be more or it may be less, according the gold value of the rupee; but it is hardly likely to be ss than 12 crores in any case. To make up the loss, natever it may be, Mr. Acworth says:—"We producers e prepared to pay by having an export duty (not larger an the amount necessary to recover it) placed on our oduce, provided—(1) That should the rupee rise in value, the export trade increase, which it almost certainly would, e duty should be proportionately reduced. (2) That the ports of Ceylon should be taxed to a like extent."

The *Mail* continues:—"Leaving aside proviso (2), which itself would be likely to present insuperable difficulties, one can hardly suppose that Ceylon would agree to the position of taxation that it could well do without, and xation moreover that would damage it in its competition th other countries, let us examine what Mr. Acworth has say about the export duty in India itself. In his evidence remarks:—'The planters of South India are perfectly lling, should the Government of India find it necessary to ake good the deficit, to submit to an export duty on their oduce in order to make good any deficit there may be. t in saying that, of course, they assume that it would be t on the produce of India in general; I mean on all oduce, wheat, jute, hides, and everything.' It is apparent om Mr. Acworth's evidence that he would have the whole ss made good by an export duty; and he specifically rejects y proposal to increase the import duties. When, however, comes to the *rate* of export duty that would be required is less precise. He speaks, somewhat hesitatingly, as gards tea in particular of 'a very small tax, say 3 per nt.' But as the total value of exported merchandise has eraged about 108 crores for the last few years, it is clear at to make up a deficit of only 12 crores (it might be 15 ores), an export duty on everything at the rate of some-ing like 11 *per cent.* would have to be levied! It can rdly be supposed that the export trade of India would stand crushing impost of that kind. Mr. Acworth's proposed ty of 3 per cent. on tea would therefore be ridiculously t of proportion to the general requirements. It will be ntended, of course, that the export trade would be imulated by low exchange; but even if, despite a crushing post, it doubles in volume (which of course is impossible), e required rate of duty would still be something like 5 or per cent. It is easy enough for planters to say—speaking, ithout authority, on behalf of all producers in India—pen the mints and we will make good the deficit;' but hat is wanted is 'practical politics,'—in a word a clear atement of the incidence and probable yield of the pro-sed extra taxation. So far this has not been given."

It will be interesting to see what planters have now to say on this point. They have an opportunity to supplement their case before the Committee resumes its sittings.

NOTES.

Coffee in London. Latest reports show that with only moderate prices offering fair prices had been realised for desirable qualities. The feature of the week was the speculative demand for "futures," which advanced further 2*s.* per cwt.

Business or Occupation? A Ceylon planter avers that in Northern India tea-planting is a *business*, here in the majority of cases it is an *occupation*; and there is a vast difference between the two. What is it in the *South* of India?

Ceylon Coffee!! Writing from Haputale a correspondent says:—"Fair blossoms up here, and prospects for next coffee crop much better than last year." We (*Times of Ceylon*) hear the same from Badulla, where there yet remains a little coffee.

Calcutta Tea Sales. At the tea sales on 9th instant 15,700 packages were sold. In spite of a smaller quantity offering, the market was again weaker for all descriptions, except leafy kinds for price, which were firm and occasionally dearer. Bombay buyers were small operators, and the price of common pekoes showed a further decline.

Tea in Java. Thus the *Ceylon Observer*:—Mr. A. E. Wright has had a very pleasant trip to Java on the present occasion, and he has been impressed with the goodness of the tea, generally in the rich soil of that country. Java tea planters are becoming very particular about jât and factories with the best machinery are becoming available. So let intending planters of more tea——beware!

Sales of Tea in Colombo. At the public sale on 7th instant Commerce Room, 6,923 pkgs. = 551,624 lb. were offered, of which 5,324 pkgs. = 403,576 lb. were sold. The sale passed with a very flagging tone, but without alteration in prices, this no doubt being accounted for by the absence of freights. All standout teas met with keen competition. The finest teas in the sale were: Glassaugh, Agra Ouvah, Glasgow, Glentilt, High Forest, Middleton, and Columbia. Among the low-grown invoices, some of the best were: Farnham, Erracht, and Murraythwaite. The quantity to be offered on Wednesday, the 14th instant, was put down at 796,690 lb.

Tea in London. The latest market report by mail from Home may be summarised thus:—Of Indian tea the supply consisted mostly of unattractive descriptions, for which previous prices were not in all cases maintained; the best liquoring sorts, however, met with good competition and realised high rates. For Ceylon tea the biddings were brisk and the general tendency of prices was upward—good medium to fine Pekoes were decidedly dearer. Messrs. Gow, Wilson & Stanton's telegraphic

report of 8th instant to Colombo states that the quality of offering generally is improving and the market steady. Fair liquoring Ceylon Pekoe Souchong is quoted 6½*d.*, average of Ceylon tea sold on Garden account during the week 7¾*d.* Reuter reports 27,000 packages, Ceylon tea offered, 26,000 sold, Fair Pekoe Souchong 5½*d.*, average of the week 7⅞*d.*; 39,000 packages Indian Tea offered, 36,000 sold; average for the week 9½*d.*; (which shows an advance of ¾*d.*)

Indian & Ceylon Teas. Writing to the *Times*, Mr. J. Ferguson, of Colombo, remarks that it may now be stated that there are, in round figures, 470,000 acres planted with tea in India, and 370,000 in Ceylon. The time has come, however, for "suspending further planting operations until it is seen what is to become of the additional crop (say, 50,000,000 lb. at least) which the young tea is capable of producing." This is a very pertinent remark for, no matter what happens to Exchange. Tea planters cannot hope to see prices rise if they continue to grow more than the world consumer year by year. The opening up of new markets does not receive in Southern India the attention that it deserves. The cultivation of *Indian* demand in particular is neglected in a most incomprehensible manner.

Becoming Careful. After recent experiences with special regard to coffee and chicory, London Magistrates are dubious as to granting summonses under the Adulteration Act. At a metropolitan police-court recently, a Sanitary Inspector asked for a summons against a local grocer for selling as coffee an article to which there was a large admixture of chicory. "Have you well considered this matter?" asked the Magistrate. "Because you know after what we have heard of the difficulties of mixing and the remarkable results of the different analyses, you would need to be pretty sure before taking the risk." The Inspector replied that these matters has been considered. There was 45 per cent. of chicory in the sample in question. "Very well," said the Magistrate, "take the summons and the risk."

The Ceylon Tea Crop for 1898. At a meeting held at Kandy on 9th instant the Planters' Association Committee decided to reduce their estimate of the Ceylon Tea Crop for 1898 by 7,000,000 lb. It now stands at 118,921,400 lb., as against actual exports last year of 116,054,567 lb. One of our contemporaries in Colombo appears to think that 1898 shipments will fall short of those of 1897. It is noticeable that the report of the St. Helier's Tea Company, Limited, states that the yield of the estate for the Season just ended is *the shortest for many years back*, the yield being just under 390 lb. per acre off the 226 acres in bearing. This is attributed solely to "the abnormal season." As a rule, says the report, more than one-third of the year's crop is secured in March, April and May, but this year owing to an absence of the usual showers or owing to some climatic influence the rush of leaf during those months was wanting.

The Currency Question. Alluding to the fact that in order to bolster up exchange the sale of Council Bills is being fixed at about 30 lakhs per week, while demand runs to considerably larger figures, Mr. Moreton Frewen writes to the *Times*;—"We were assured when Parliament sanctioned the recent loan of six millions that this money not asked for, and would not be employed, to bolste the currency proposals of the Government of India. yet only for that large credit there is no doubt but that Secretary of State would be now selling his normal am of bills—say, 65 lakhs per week—in order to pay his It may be supposed that the Treasury balances are low was the case a year since, because of the famine, and for this reason the rupees are not in the Treasury to But this is not the case; the Treasury balances are 1,500 lakhs—quite 60 lakhs in excess of the balances i Treasury in June and July, 1896. In July, 1896, the we sales were 50 lakhs; in July, 1895, 60 lakhs. It is prepo ous to declare that exchange is steady around 16*d.* w the Government of India—the greatest silver seller earth—is living by borrowing gold. If no bills at all sold and continuous gold loans made, to put off the day, the exchange could be forced up for a year or even to 2*s.*"

What happens when Coffee is roasted. Messrs. A. Juckenack and Hikger have recently studied alterations which take place w coffee is roasted with the addition of 3 or 9 per cen sugar as practised in Germany. The chief results of t experiments are as follows:—(1) Caffeine: in the ordi process of roasting coffee loses about 21 per cent. o caffeine, and about twice that quantity when roasted sugar, owing to the higher temperature which is requ to caramelise the sugar so as to glaze the coffee. (2) From 9 to 10 per cent. is lost during the ordinary pro of roasting, and about 20 per cent. in the glazing proc As a rule the different constants of the fat show an incr on roasting by either method. (3) Organic matter: In author's experiments the loss on the average amounte 11,375 per cent. in the ordinary roasting, whilst in glazing process it was about 10 per cent., allowance b made for the amount of caramel. This was determine Stutzers' method. Twenty grms. of the glazed beans shaken in a machine for five minutes with 500 grms water at 20 deg. C. The liquid was filtered, and residue in 250 c.c. of the filtrate, after deducting the was taken as caramel. In this way, on coffee glazed 9 per cent. of sugar, as against 1·25 per cent. of su there was found 1·40 per cent. of caramel, as against per cent. on a sample of Java coffee glazed with 8 per of sugar.

COFFEE SHADE TREE.

Sun-dried Erythrina Lithosperma loppings, &c., contain ton:—

61·50	lbs.	Nitrogen.
57·38	„	Potash.
14·92	„	Lime.
13·68	„	Phosphoric Acid.

Seed cured under Messrs. Sutton and Sons' advice.

Orders should be booked early for the 1898-1899 crop of seed the parent trees of above analysis at Rs.6 per pound contai about 2,000 seeds. *Germination guaranteed.*

Only thornless variety extant, and is not procurable anywhere from the

MANAGER, ARIENKOW ESTATE,

Shencotta

Planting *v.* Farming. A "contributed" paper in the *Planter* sets out that in the near future, planters engaged in raising indigo, tea or coffee, will find it incumbent on them to adopt a system of utilising land which is more rational and scientific than the existing system. "Planters choose some one individual product which they imagine they can grow successfully and profitably at all times. But the conditions under which they set to work soon give place to others which are less favourable. Rival planters set up plantations on improved principles, which goes to reduce the price of the product, heighten the price of labour, and upset all previous calculations regarding profits. The land also, perforce, gets year after year less suited for growing the individual crop that is chosen." In all this the writer's remarks tally with those of Mr. Cameron, reported in our account of U.P.A.S.I. Committee proceedings, given on another page. And the following remarks are also worth attention :—"Even when manuring is resorted to, blights and insect-pests, which always find their proper host-plant ready at hand for them to grow and multiply, sooner or later involve the question of growing the crop successfully with insurmountable difficulties. The balance of nature is bound to be disturbed, giving rise to epidemics, when a particular plant is grown, or a particular animal reared exclusively in any locality on an extensive scale. Tea-blights and coffee-blights, potato diseases and betel-nut plague, pleuro-pneumonia and pebrine and sugar-cane borers are not mere accidental growths. They follow the ordinary course of nature in their gradual and rapid development under suitable surroundings. When a crop is overdone, blights cannot be avoided." The above points to a suggestion of rotation of crops, whereas Mr. Cameron recommends careful selection of seeds and the introduction of new varieties for hybridisation purposes. There is a good deal to be said in favour of both systems, but which would best stand the test of practical trial cannot yet be determined. The one thing that is clear is, what Mr. Cameron, the above writer and many others are now agreed upon, *viz.*, that agricultural training, scientific and practical, is becoming more and more a necessity to the planter—whether it be supplied in his own person, or that of his assistant, or that of a scientific expert whose advice is at his disposal.

Market Reports. The *Produce Market Review* of 20th August makes the following remarks on the position :—*Tea—Indian.*—The market has been amply provided with a good selection, and of the 35,000 packages brought forward a very fair proportion consisted of desirable sorts. The few fine Darjeelings, although realising good prices, did not meet with such brisk competition as last week, and buyers were able to secure them on more favourable terms. The lower grades of this growth are in somewhat large supply, but the demand is slow at the comparatively easy prices ruling, due to the fact that most of the teas were deficient in flavour. For the Assam Teas, most of which continue quite up to the average, there has been a good inquiry, with a fairly large business doing at irregular and, in some cases, at slightly lower prices. This ease in the market applies to the medium sorts, while the finest descriptions are keenly competed for at quite last week's rates. In most cases other growths still remain about on a par with the earlier shipments, being very poor in cup and, jugdging from the Calcutta reports, it will be some little time before there is much improvement in either the Sylhets or Dooars Teas. At the public sales 35,253 packages were catalogued and 31,303 disposed of.

Ceylon.—At the public auctions held on Tuesday last the quantity of this description brought forward was again exceptionally heavy, totalling some 29,702 packages. Notwithstanding this large supply immediately following the record sale of last week, competition was keener than before, nearly all grades being distinctly firmer, and teas for price especially were more difficult to obtain, except at advanced rates. In point of quality a slight improvement was noticeable in several instances, which will in some measure account for the higher prices obtained for several well-known marks. Of the 29,702 packages brought forward, only 1,220 failed to find buyers.

Coffee.—The auctions have again been much below the average at this time of year, and have contained little beyond Central American descriptions. These have mostly all sold freely at prices which in nearly every instance were against buyers. The few lots of fine Costa Rica were bought in for higher rates, although full prices were offered. The commoner grades sold at an advance of from 1*s.* to 2*s.* per cwt. Colombian and New Granada met with good competition at firm prices, particularly the bold coloury parcels, which fetched rates quite equal to those ruling last year. No business is reported in East India, but Plantation Ceylon, of which there has been rather more offered, has sold at a slight advance. In the terminal market the heavy daily receipts have checked speculation, but quotations have been well maintained, and some growths are slightly dearer.

LETTERS TO THE EDITOR.

A CO-OPERATIVE SALTPETRE REFINERY.

Sir,—In an editorial note in your issue of August 27th, you say "* * * * * the opinion we hold, that to make a venture which has great possibilities for planters a thorough success, the identity of the promoter should be revealed, and the scheme started with a pucca debenture subscription." Again, in another note in the same issue, "We think that the whole scheme must be put on a thorough business basis before it will take a practical shape." I am sorry you should have so completely misunderstood my motive in suggesting the establishment of a Co-operative Saltpetre Refinery under a *nom-de-plume*, instead of under my patronymic. In taking that course my reflection was, "If 24 men are not willing to support me in starting a refinery, after I have sketched the scheme, let it die a natural death, and there will be no occasion for me to push myself before the public; but if I find 24 men are willing to support me, I will take it up in earnest, and put it into proper business shape." *Of course* I meant to "reveal my identity," and "place the scheme on a business basis," directly I found it would "fizz." All this I thought would have been clear from the concluding para. of my first letter on the subject (see *P. O.* of July 16th). I have now received letters from eleven planters, signifying their willingness to join, and five more have promised to join shortly. There is, therefore, every prospect of the scheme coming to a head; and I think the time has come to "elaborate" it, as I promised to do in my original letter.

Constitution of General and Executive Committees.—I have estimated the amount required at 25 estates at Rs.50 each, but 20 subscriptions will yield enough to enable a start to be

made. When the number of applications reaches twenty, I will ask one subscriber from each district to serve on a General Committee, which will have entire control of the whole scheme. But as subscriptions come from several planting districts, this General Committee will be scattered over a wide area; and it will therefore be necessary to appoint a small executive or working Committee, resident within a reasonable distance of myself, to whom questions of working, &c., can be easily and quickly referred. The following planters, I suggest, should form this Committee:—Mr. A. G. Nicholson, Mr. Rhodes James, Mr. L. C. Liebenrood, and myself, *ex-officio*, as Honorary Secretary.

Payment of Subscriptions.—The Committees having been formed, I will ask all planters who have joined to pay their subscriptions. Messrs. Arbuthnot and Co. have kindly consented to act as Treasurers of the scheme, and all subscriptions must be sent to them.

Expenditure and Accounts.—When the subscriptions have been paid, I will go down and start work. I estimate that for buildings, plant, &c., Rs.250 will be required. The rest of the fund will be laid out in advances to Upiliyas or A. Licensees (who collect the nitrous earth, and carry out the first process—the manufacture of crude saltpetre) as may be necessary. I will draw against the refinery fund for such sums as I may require, by cheque; and will render a monthly account of expenditure to the Executive Committee. Annually the accounts will of course be laid before all subscribers. I shall expect to be recouped my actual expenses in travelling and living while I am starting the refinery. Further than this I ask nothing for my services, and will carry on the duties of Secretary without charge.

The forms of account to be maintained at the Refinery, and by myself as Honorary Secretary I will settle in consultation with the Executive Committee. I have drawn them out already. I may say here that as it will not be possible to maintain a staff for the preparation of bills, all saltpetre will have to be paid for in advance, the money being sent to the Treasurers and the order to me

Object of Refinery.—I propose, at least for the present, to limit the subscription list to 25 members. These subscribers will have the privilege of obtaining all the saltpetre they require, at actual cost price. If there are any surplus stocks, they can be disposed of in the open market, but of course non-subscribers will have to pay something over and above cost price. The issue price to non-subscribers will have to be determined by the Committee. The co-operative refinery will, to begin with, be a small concern; but I shall not be surprised if its development is rapid. When non-subscribers find that they can get saltpetre at, say, Rs.100 per ton equal to, if not superior to, the saltpetre now imported from Calcutta and sold at Rs.200 per ton, sales are bound to rise rapidly. My own opinion is that in a short time the profits accruing from the sale of saltpetre to non-subscribers will not only cover all expenses connected with the refinery, but will leave a substantial sum for division amongst subscribers. But I wish it to be clearly understood that that is entirely a side issue. My present purpose and the object I have steadily in view is to provide really good saltpetre at a low figure to myself and 24 other planters who are willing to provide the funds necessary to achieve this object.

Subscribers will have to give previous notice of their requirements, so that arrangements can be made to meet these before disposing of any saltpetre to non-subscribers.

Site of Refinery.—The first refinery will be either in Trichinopoly or Coimbatore. In both these districts there are excellent nitrous earth deposits. The latter would be nearer and more central to the majority of estates, and I should say Coimbatore definitely, but for the fact that I know of a very large pucca building in the village of Moganur on the Kâveri, in Tric District, erected expressly as a Saltpetre refinery many ye ago; and it might perhaps be an advantage if this could secured. Before finally deciding I should like to see it aga If the choice falls on Coimbatore, I hope to be able to put up refinery in or near the town.

This will have two great advantages:—The Railway will close, and the refinery can be easily inspected by any subscri passing through. As many of the subscribers are resident the Nilgiris, I hope such visits will be frequent. They will a long way towards keeping the Overseer in charge up to collar. Eventually I hope it may be possible to start a separ refinery for each planting district. At Coimbatore for Nilgiris and Wynaad; at Salem for the Shevaroys; at Dindig for the Pulneys, and so on; but it will be necessary to ma a start in a small way, with one refinery, and the most cent site for that will be, I think, Coimbatore.

Management of Refinery.—I will, as promised, persona supervise all preliminary arrangements and the actual mar facture until the Overseer is competent to take charge operations. The refining process is neither complicated difficult; and it will not take an intelligent native Overs long to grasp it. For the present an Overseer on, say, Rs.25 30 per month will be sufficient. If the refinery proves succe ful, and branch refineries can be located in all planting centr it will probably be necessary to have an Inspector on a high salary. But that can be left over for the present.

Quality of Saltpetre.—I now come to the most importa question of all. What quality of saltpetre will the refinery tu out? Through the kindness of Mr. A. G. Nicholson, of Coono I am able to give details on this head. Some time ago t gentleman started a refinery in Dindigul to supply his own nee An Overseer was placed in charge, and he received Rs.50 every ton of saltpetre. Mr. Nicholson considers that the actu cost was considerably less, as the Overseer admittedly mad large profit under this arrangement. The saltpetre made this private refinery gave this analysis:—

Nitrogen	7·715 ...	per cent.
Potash	26·537 ...	

Mr. Nicholson also had an analysis made of the saltpet imported from Calcutta and now sold at Rs.200 per ton, four times the price of the saltpetre he made himself. This C cutta sample yielded:—

Nitrogen	... 8·13	per cent.
Potash	...31·42	

Planters can now judge for themselves whether it is wor their while to go on paying the present exorbitant price f imported saltpetre when they can make practically the sa article for a quarter of the price. Our saltpetre would certain be up to this standard, but I think I can safely promise that a similar price it will be much better. I gather from Mr. Nich son's letter that ordinary native methods of manufacture we followed at his Dindigul refinery, whereas it is my intention introduce, as far as possible, the English system. I do n think it is necessary to enter here into a disquisition on t difference between the two methods. Briefly, all organ impurities can be easily eliminated by the use of common gl (no native refiner ever thinks of clarifying his nitrous solution while the inorganic impurities can also be got rid of in a larg degree by the substitution of shallow crystallizing pans peculiar shape for the earthen vessels buried flush with t ground now in universal use. I believe that with greater ca exercised over the refining process and with the adoption improved methods, it will be quite possible to turn out a samp giving 9 per cent. nitrogen and 35 per cent. potash at Rs. per ton. The refinery could of course make absolutely pu nitrate of potash, but that would mean further refining a consequently greater expense. I am at present merely concern

with what can be done for Rs.50 per ton. The Calcutta sample gave 25·87 per cent. of sodium chloride and 5·08 per cent. of moisture. The former is evidence of carelessness in the refining process; and from the latter I judge the saltpetre was in large crystals. These always retain some of the mother-liquor in their interstices with a proportionate amount of impurities. By keeping the nitrous solution in a state of agitation while it is cooling, smaller and purer crystals can be obtained. In England the fine crystalline needles called "saltpetre flour" are considered the most valuable.

I do not know that anything further remains to be said regarding the preliminary arrangements for the proposed refinery, but if you, Mr. Editor (or any planter interested in the scheme), will suggest any additions or improvements that may occur to you, I shall be most happy to consider them. And I trust the "business basis" on which I have now placed the refinery will be regarded as satisfactory. If it has faults, they are faults of omission, not commission, which I shall be very glad to have rectified.

F. W. F. FLETCHER.

ROCKWOOD, NELLAKOTTA, NILGIRIS,
10*th September*, 1898.

GENERAL ARTICLES.

THE U.P.A.S.I. SECTION.

[UNDER THE CONTROL OF THE SECRETARY, U.P.A.S.I.]

The representations made to the Mysore Government with regard to the desirability of employing an Agricultural Chemist have borne good fruit. The Durbar have on further consideration decided that there is employment for a full time man for several years to come, and have therefore applied to the Government of India for the employment of Dr. Adolph Lehmann for a period of five years. They are willing to lend the expert's services upon occasions to planters and other landholders upon payment of a moderate fee.

The above probably destroys Coorg's chance of co-operation with Mysore in this matter, but, on the other hand, the Durbar have not stipulated that their expert's services are to be at the disposal of planters and landholders in Mysore alone. So, no doubt, Coorg and other districts will be able to arrange so as to derive some benefit from Mysore's action. The pity is that the Madras Government does not also realise how much scope there is within the Presidency for the investigations of a highly trained agricultural scientist.

The Ceylon Planters' Association has had under consideration the resolution of the U.P.A.S.I. regarding Reduction of the British Tea Duty, but the minutes of proceedings of the meeting held on 9th instant give no clue to the opinions of Ceylon planters. No doubt, something more definite will be made known in a short time.

Our Ceylon friends are going in "bald-headed" for a Labour Federation. They have adopted the following report of a Sub-Committee appointed to consider the matter :—

The Sub-Committee begs to report that whereas lists have been received showing that the Representatives of Estates exceeding 195,000 cultivated acres have consented to join a Labour Federation, after consideration of the Provisional Rules adopted by the Planters' Association, and whereas a considerable number of districts and estates are as yet not canvassed, not being connected with a District Association, the Committee of the Planters' Association be, and they hereby are, advised to call a general meeting of all who have agreed to join the Federation and of all others who are interested in the question (II) that the lists as submitted be printed and circulated to each District Association to members of the Planting Community not on the Register of the Planters' Association, and to all others interested.

The appointment of Mr. Kelway Bamber as tea expert has been formally confirmed by the Planters' Association of Ceylon, and the following resolutions passed in connection with the matter :—"That the following list be accepted as the list of districts giving a complete representation of Ceylon tea, and in addition that it be recommended that in each of the three large districts of Dimbula, Kelani Valley, and Dikoya, representing over 30,000 acres each, two estates be selected. Districts (1) Ambagamuwa, (2) Badulla and Namunukula, (3) Dikoya, (4) Dimbula, (5) Dolosbage and Yakdessa, (6) Haputale, (7) Hewaheta and Old Maturata, (8) Kalutara, (9) Kelani Valley, (10) Knuckles, Kalabokka, Hunasgiriya, Rangala, Hewa Eliya and Lunugala, (11) Kotmale, (12) Madulsima, (13) Maskeliya, (14) Matale, (15) Nilambe and Hantane, (16) Nuwara Eliya District, (17) Punduloya, (18) Pussellawa, (19) Rakwana or Morawa-korle, (20) Udapussellawa and New Maturata."

"That the Secretary do forward the list of districts above mentioned to all District Associations intimating that one estate in each of such districts will be visited by Mr. Kelway Bamber, and inviting the District Associations to appoint a Sub-Committee to select the estate in the district to be so visited threafter transmitting the name of the estate so chosen to the Secretary, 'Thirty Committee,' before the 1st October, 1898, from which date Mr. Bamber's engagement begins. If the name of an estate is not sent in to the Secretary by the 1st October, it will be deemed that the selection of an estate is left to the decision of the 'Thirty Committee.'"

PREPARING BONE MANURE.

A GOOD method of utilising bones as manure is described in the practice of Mr. Walter Thomson, of O'Halloran Hill, Australia. He first made a layer of farmyard manure in a suitable spot, then a layer of crushed bones, followed by another layer of manure, then bones again, and so on, till the heap was of a suitable height. A small gutter or drain was made around the heap leading to a pit, where the drainings were collected and poured back again over the heap. This was in the winter season. In the summer a little water would require to be added. He suggested that a little weak sulphuric acid, 1 part of acid to 400 of water or drainings, would fix the ammonia and prevent its loss by evaporation. He favoured acid instead of gypsum, which is usually employed to fix ammonia, as the organic

PLANTING BOOKS.

Map of Ceylon Tea Estates Rs.9; colored Rs.10; Mounted in case Rs.14.

Map of Ceylon Plantations, Plain Rs.8. Inga Va, Rs.2-8. Areca Palm, As.12. Cocoanut Planter's Manual, Rs.4-10. Ceylon Manual of Chemical Analyses, Rs.3-10. Tobacco Cultivation, Rs.3-10. India Rubber (now in the Press). Coffee Planter's Manual (now in the Press). All about Spices, Rs.3-10. Coffee Tree and its Enemies, Rs.1-8. All about Grub, Rs.1-5. Brazil as a Coffee Country, Rs.1-8. Cardamoms, Re.1. Ceylon Coffee Soils and Manures, Rs.1-9. All about Aloe and Ramie Fibre, Re.1. Estate Buildings, Rs.4-4. Coffee and Chicory, Rs.1-13. Coffee Cultivation in Ceylon, As.5. Tea Cultivation and Manufacture, As.5. Tea Cultivation in Ceylon, As.6. Tea at high elevations in Ceylon, As.3. Manuring of Tea Estates, As.8. To Economise Labour Supply, As.12. Planting, Pruning and Preparation of Tea, As.12. Salt for Agriculture, As.8. Cocoa, Cocaine and its Salt, Rs.2. On the Importance of Lining, As.4.

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matter of the manure would decompose the gypsum and form sulphate of calcium—a noxious ingredient, which prevents the use of gas lime as a manure. Of course the smaller the bones the quicker will be the fermentation. Mr. Thomson said the work of fermentation was so well done that he could not find a piece of bone in the heap, and he estimated his crop at 32 bushels per acre in a dry season which was dressed with this manure.

CEYLON PLANTERS IN NATAL.

MR. JOHN FRASER SECURES A GOLD MEDAL FOR HIS TEAS.

MR. JOHN FRASER has secured a gold medal for the tea he exhibited from the Barrow Green estate in Natal, at the Durban Exhibition, reports of which have just reached us from Natal. In fact, one of his fancy samples was valued at £5 a lb., and the judges at the Show, as well as the Press, are full of praise for the skill of the old Ceylon planter. *The Natal Advertiser* of the 14th July writes as follows :—

"The Barrow Green estate's display was beyond comparison for Colonial tea, and inspired judges of good tea with ecstatic eulogistic comments. In the higher grades, a wonderful improvement over last year's exhibits was noticeable, and the fancy teas were the finest ever shown in Durban."

Another Natal paper says:—

Show Tea.—The Barrow Green Estates, Limited, received gold medal for best teas in the ordinary grades—three firsts, and first prize for naval oranges, as well as highly commended for 50 small Spanish lemons in the fruit section. "I think (writes Mr. John Fraser) the judge of the teas will bear me out when I say the whole of the teas on show this year (first and second, as well as special prize teas) have never been equalled before in any Show in South Africa, in either appearance or quality."

RUBBING IN FACTS.

IN various quarters the U.P.A.S.I. has been reproached with travelling repeatedly over the same ground, and reiterating the old instead of telling something new. The following from the *Home and Colonial Mail* shows that the Association is not alone in favouring a policy of "hammering the nail home":—

The British-grown tea industry has arrived at a critical stage in its history. Every opportunity should be used for impressing the truth on the public mind that a progressive and flourishing industry is suddenly restricted owing to the measures taken by the Indian Government to inflate the value of the rupee. Before it is too late the facts should be known far and wide. Twenty years ago sugar planters were calling attention to their grievances and pointing out the inevitable collapse of the sugar industry under the burden of bounty fed beet, but no practical steps were taken to investigate the position until the eleventh hour, and now, we fear, aid has come too late. The tea enterprise of India and Ceylon is threatened with disaster unless something can be done to dispel the currency cloud which hangs over it. There is no secret about the impending trouble. Already its effect is seen in declining prices of shares, and in the withholding of further capital from this field of investment. Planters have had to admit facts which stare them in the face, and although it is an unpleasant enough business, this admission that their pursuit is likely to become unremunerative, the statement has to be made in plain English. No help is to be expected from the economists. Under these circumstances it behoves every friend of tea, and not only of that industry, but of each and every productive industry of India and Ceylon, to move every force and use all the influence possible to bring the facts before the public notice.

THE INDIAN CURRENCY COMMITTEE.

MR. ACWORTH BEFORE THE CURRENCY COMMISSION.

TEXT OF HIS EVIDENCE.

THE following is, says the *Madras Mail*, the evidence given by Mr. G. L. Acworth, representing the South Indian Planters, before the Indian Currency Commission :—

What in your opinion was the effect of the closure of the Mints in 1893 upon the trades that you are specially representing?—W stopped extension.

It arrested progress?—Certainly it arrested progress. I that from my own estates. I am one of the largest raisers c seed in South India. I used to be able to fill my order book in advance. At this time last year my order book was comp for 1898. This year I have been trying ever since the beginni the year to get orders for 1899, and I have not been able to b single order, not one.

Do you think that that at all arises from any excess of productio No, I do not.

Then the production of 1897 would be about the same as 189 1859?—No, I am sure it was not.

You mean there has been no extraordinary increase of pr tion?—No, the increase in the production of tea of late year been gradual, but steady.

Does that apply also to coffee and cinchona?—Coffee and cinc are on rather a different footing to tea in South India. Cinc was so largely produced some years ago that it hardly pays now long before the closing of the mints there was a great decrea the exportation of cinchona. Coffee, on the other hand, will grow in very favourable situations, and I do not suppose th Southern India you could find a further 2,000 acres suitabl coffee.

That has been a state of things that has existed for some year Many years.

You would not connect that with the closing of the mints?- though I consider that the coffee planter is not hurt as much as tea planter.

We have heard it stated for many years past that the consum of coffee in this country is decreasing?—I believe that is so.

That will also have an effect in arresting the progress of the c trade?—Hardly, because it increases in other countries.

Have you any other injurious effect excepting the arrest of gress that you can point to?—Yes, your income is conside curtailed.

But arresting progress is one thing, retrogression is another. it diminished production?—When you have a large capital inv in a thing like an estate in India you cannot shift your capital a It takes you many years to bring an estate into bearing. You to build large buildings and fill them with expensive machinery. are compelled to go on. So that for the present there would tainly not be a diminution in production, but I know that exp are being cut down, and only two mails ago I heard from my a in Ceylon that in May 150 superintendents were dismissed owi lack of means to pay their salaries. I will read you the letter i wish it. It is dated 4th June, 1898. Mr. R. W. Cole, my agent, s "You know, no doubt, what a terrible panic exists in Ceylon a present time owing to bad prices and that cruel exchange. The c smash was nothing to what the smash impending in the tea tra now. The owners of tea properties are panic-sticken, nearly e place being worked at a loss, or only just paying its way without profit. To men whose capital is locked up in tea, and who are dep ent on their profits therefrom, it means absolute ruin, as it does to superintendents and assistants whom proprietors cannot affo keep on. One hundred and fifty were dismissed from estat Ceylon in April for no other reason than that the Companies coul afford to retain their services, and I know of a case of a visiting a who, after a fortnight's visit to up-country properties he represe returned to Colombo at the expiry of that time after having giv month's notice to 27 superintendents for the same cause."

Do you think that is attributable in the main to the rise i change?—I think, entirely.

Now, first of all, have the prices of tea fallen?—Do you m momentarily?

I mean gold prices in London?—Do you mean momentaril for a series of years?

I mean since the mints were closed?—Yes, I think they have.

I want to know whether prices have been falling or rising?— mints were closed in 1892-93. The market has fallen about 2¼*d* pound since then.

That is the gold price in London?—The gold price in London

What was your price in London in 1891?—10*d*.

MILLIE & REDMOND, late P. THOMPSON & CO., *Ootacamund, Engineers and Contractors.*

And now what is it?—7*d*.
How would the gold price in London be affected by the closing of e Mints?—We have to accept a cheaper price on account of our mpetition with China.
It is a question of competition?—A question of competition.
If there was no competition it would have no effect whatever?—es, it would.
What?—It would have an effect on our purchases of silver. We rk on a silver basis in India. We receive gold for our prices, and have to buy silver, and send it out to India.
I will come to that presently, but I want to proceed step by step. far as the price of tea in the market in London is concerned, it of course, totally irrespective of whether the article comes from dia, or from China, or elsewhere. The gold price of tea in London uld not be affected by the closing of the mints in India?—No, it uld not.
I am not saying that your profits or losses would not be affected, r am I intending for a moment to imply that your expenses might t increase or decrease, but so far as regards the gold price in ndon, it is not affected by the closing of the Mints?—It is tirely, I should say, a question of supply and demand.
I suppose the price in London represents practically the price in e world generally?—Yes, I should imagine so.
I was going to ask you whether there is any difference in merica?—That I could not tell you. If you are going to allow us bring in the argument of competition with China, then that es come in.
Yes?—There is a difference, because we have to compete with ina in America, and we have to accept much lower prices.
You did have to compete with China in England?—We did.
And as tea could be produced more cheaply in India than in China u have beaten them?—We have beaten them. We have produced better article, and it has met the taste of the public. The reason is at, in spite of the price, Indian tea is a cheaper article per pound an China tea. You get very nearly double out of a pound of Indian a, so that it is cheaper to pay 7*d*. for Indian tea than 5*d*. for hina tea.
Then the gold price being outside the question altogether, is it to ur advantage or disadvantage that the current price which you ceive in London should produce more or less rupees in India?—hat it should produce more.
Why?—Because we pay our labour in silver.
Do you pay anything else but labour in silver; I suppose what-er machinery you use is exported from England?—Yes. There is thing more but labour, but that is, I suppose, 90 per cent. of our hole expenditure.
Of your expenditure on production, nine-tenths of it would be bour?—Yes.
And, therefore, while you might gain on one-tenth by a fall in xchange you lose on nine-tenths by a rise in exchange?—Yes.
Have your wages been stationary, or have they increased or ecreased?—You might almost say that they have been stationary. hey have increased very slightly.
Now will you explain to the Committee what you alluded to just ow as the bullion competition with China, and the effect upon the a trade of that—first in our market, and then in the American arket?—I can put it to you here in figures. We will say that "A" ips from India 100,000lb. of tea, and receives in London 7*d*. per .; he remits the proceeds to India at 1*s*. 4*d*. the rupee. He ceives for that Rs.43,750.
In India at 1*s*. 4*d*.?—In India at 1*s*. 4*d*. "B" ships from China 00,000lb. of tea at 7*d*. per lb. He remits the proceeds to China at . 11⅛*d*. per dollar, which is the present price of exchange on China, r which he receives 30,270 dollars; 30,270 dollars are equivalent to s.60,540. Therefore China has the advantage over India in every 0,000lb. of tea of Rs.16,790; or, to put it in other words, in every ound of tea she receives a bonuds of one anna eight pies per lb.
Now, are wages the same in China as they are in India?—That I nnot tell you.
Do you think the cost of production is more or less in China than India?—I should imagine much less in China; of course, I have no al knowledge.
But your opinion would be that it would be less, and I suppose at would be the opinion of most people?—Yes, but I would draw our attention to this. China has an advantage of one anna eight es per lb. He is a very very fortunate planter in India who makes profit of 1 anna 8 pies per lb. on his tea.

That being the effect of what we call the bullion competition, will you tell us how it has affected the imports from China and India into America?—I have not the figures for that, but I can get them.
Then will you put them into your evidence when you correct your proof?—If they are to be had in the City I will get them. I may say that, if our exports to America are increasing, they are probably increasing through our own action there. I mean to say we tea planters have for many years past taxed ourselves voluntarily, and kept a representative in America to push our produce. We had no field in America before we took that action. I do not suppose there was 100,000 lb. of Indian tea drunk throughout America, and last year we had increased our exports to 10 million lbs. But it was entirely by our own exertions, because at the first many of the large dealers in America absolutely refused to store our tea in their warehouses.
I suppose your increased sales in America sprang from the same causes as did your successes in competition with China in this country—that you gave a better article?—But we had to give it away at first. When you take our increased exports into America it must be remembered that that is done by our own efforts, and that it is not likely that we shall be able to go on doing it.
Why no?—You have an enormous market there in America?—Yes, but we shall soon be making no profit, and cannot afford to tax ourselves.
(Sir F. Mowatt): That does not mean that you are making no profit now?—We are making a bare profit.
You are not continuing to give it away?—No.
(Chairman): Do you pay your wages in money or in kind?—In money.
Altogether?—Altogether.
The mints now being closed, what do you think is the best course to take? Are you in favour of re-opening the mints?—Of course I am not a currency expert, and I do not pretend to know what the effect of re-opening the mints would be, but I certainly think it would be for the benefit of the Empire to re-open the mints. It should never be forgotten that the Indian Empire is a producing Empire, and that it is not merely the Government remittances that have to be considered, but the 250,000,000 labourers behind them.
You do not think that the actual amount of wages has varied much?—No, they have a little, but not much.
Has the purchasing power of the rupee varied?—No; not for such goods as our coolies use. It depends entirely on seasons. If there has been a good season, such articles as they consume are cheap. If it is a bad season they are dear.
Assuming there has been no rise in wages, which represent $\frac{9}{10}$ths of the cost of your production, the larger number of rupees that you receive in exchange for your gold price is so much additional profit?—So much additional profit, or perhaps, to put it in another way, it saves us from any loss.
Have you at all considered what would be the effect on the finances of India of open mints and a fall in exchange?—I have considered it of course from the point of view of what I may call an outsider. As I say, I do not profess to be an expert in the currency question.
This is not a currency question: it is an administrative question?—I suppose the rupee would fall, and that perhaps, temporarily, it might create a certain amount of difficulty, but it would only be temporary, and I believe the Government of India is very well able to meet its obligations. It always has done so, and the other day Lord George Hamilton stated in the House that no country except the United Kingdom could show such a record in its finances for the past twenty years.
That is not with the rupee at 10*d*.?—But it had gone to 1*s*. 1*d*. in that time.
May I take it that in your judgment the tea producers in South India, where you have personal knowledge, and certainly in Ceylon, where you say the considerations are the same, would be handicapped in competing with silver countries by keeping the exchange at 1*s*. 4*d*.?—Undoubtedly.
And the other effect also upon your trade would be that it would practically amount to such an additional burden in the cost of your production that it would deprive you of any gain?—I think so certainly.
Is there anything else that you wish to say in addition to that?—I do not think I have anything more to say on that subject, but I should like, if I may, as I have been asked to represent that industry, to turn to the subject of the gold production in Mysore.

That is increasing rapidly, is it not?—It is rapidly increasing, but it is also very heavily taxed.

The gold is?—Yes, by the artificial rate of the rupee. Gold is almost as good an instance as one can take. The price of gold may be reckoned as £3-17*s.* 6*d.* the ounce, and that price is steady: it has not varied, I think, ever since England introduced gold standard.

In Mysore?—Mysore has followed the price all over the world. Sir John Taylor and Sons, who are the head practically of the gold mine industry in Mysore, write to Mr. Hodgson, who passed the letter on to me, "The expenditure at the Kolar Mines affected by exchange amounts to about Rs.6,33,000 per month or Rs.75,96,000 per annum, therefore, every penny that is added to the price of the rupee increases the expenditure by £2,637-10*s.* per month, or £31,650 per annum."

During the greater portion of the period that the Mysore mines have been open has not the exchange been much higher than 1*s.* 4*d.*?—Before the closing of the mints it did not affect them, because they were working on an equal level with other countries. They were all on a par.

Are they not paying higher dividends this year?—That may be due to more production.

But that tempers the East wind to the shorn lamb?—It may temper the East wind to the shorn lamb, but still they have this loss of £250,000. If they had their mines anywhere else they would be £250,000 a year richer than they are now.

(Mr. Campbell): You think the rupee was fixed too high at 1*s.* 4*d.*?—I think it was a mistake to fix it at all.

You think it is too high at 1*s.* 4*d.*, would you think it too high at 1*s.* 3*d.* or 1*s.* 2*d.*?—I think it a mistake to fix it in any way.

That is to say, you would not have a gold standard at all?—I would not have a gold standard. I think it is unsuitable for India.

If you have a gold standard you must fix it?—Yes.

The tea industry was very prosperous some years ago when exchange was in the neighbourhood of 1*s.* 2*d.*?—Yes, before the closing of the mints.

Before the closing of the mints exchange never fell to 1*s.* 2*d.* I am speaking of 1894-95?—Yes, that is so.

The tea industry was a very prosperous one then, was it not?—Yes, it was.

And if exchange instead of being fixed at 1*s.* 4*d.* had kept at about that neighbourhood, is there reason to suppose that it would not have been as prosperous now?—I think it would not be prosperous.

For what reason?—I think if you are going to fix it at 1*s.* 2*d.* when its true value is 10*d.*, you still handicap the Indian producer in his competition with other countries. Of course it takes time to feel the effects of a measure like the closing of the mints. In 1894-95 we had not begun to feel it, it is only recently that we have done so.

You would object to anything but the silver value of the rupee?—I should object to anything but that.

The production of tea has been increasing a good deal during late years, has it not?—It depends on what you call during late years. If you take the last three years, the output has not been increasing much.

And consumption, I think, has increased?—No, consumption, I think, is pretty nearly steady now; there is not much more room in the United Kingdom.

So that you do not hope for any increase in prices owing to the increased consumption?—I do not think there is any chance of that. Of course in a bad season there may be a temporary falling off in crops which may conduce to a slightly higher rate, but I do not think there is any chance of a permanent rise.

Not even if the curtailed production which you spoke of is continued?—I do not think so.

You say you have driven Chinese tea partly out of the English market?—Yes.

But you have not done that in America?—We have hardly displaced it at all.

And in Australia?—In Australia we have practically driven China out of the market, but we did that long ago.

Do you know if China is making any effort to regain her hold of the English market?—Well, that she is making efforts to regain her hold on the English market I cannot say, but I know that China is making every possible effort to improve her tea, and I presume that that means she will push it into the English market when she has improved it.

You mean by improved cultivation———?—Improved cultivation and improved manufacture.

Have you seen any indication of European enterprise b associated with it?—Only from what I have heard. There is Foochow Tea Improvement Company, whose prospectus you c no doubt get in the City, which has been started for the purpos improving the cultivation and manufacture of China tea, and th a body of British merchants.

If that were introduced on any large scale, and tea productio the lines followed in India and Ceylon were introduced into C China would become a formidable competitor?—Yes, I think could rush us out of our market.

Especially with the handicap of exchange?—I mean with handicap of exchange.

Labour is very cheap in China?—Yes, I said just now to Henry Fowler that I had had no experience, but I do know as a that labour is cheaper in China than in India.

(Chairman): Just to get this figure right, the export of tea from China and Ceylon and from India is rapidly increas it increased last year?—The figures for India last year 148,258,000lb. against 148,217,000lb. That is a difference of 35,0

In the returns that we have it is put at 153,000,000 last year India?—I got this from a large broker in the City. Every cir that is issued by one of the largest firms of tea-brokers in the Messrs. Gow, Wilson and Stanton, points to the fact that the not room for more tea in England. I got that from Messrs. Wilson and Stanton.

The better test after all is the revenue, there is no doubt a that. Now in 1895 the revenue from tea was £3,587,000. In it was £6,746,000, in 1897 £3,799,372. Last year there wa increase again?—Yes.

You say there is no room for expansion of the trade?—I d think there is any room for the expansion of the trade compar the expansion, say, from 1888 to 1892.

I just wanted to call your attention to the fact that there enormously rapid increase of the duty received at the rate of 4*d.* i lb.—No doubt you are right, but this has been done at a great sac to the producer, who cannot afford a further fall.

(Mr. Le Marchant): You were speaking of expansion in the 1888 to 1892. That would have some effect on the market, that say, your supplies have been materially increased?—They have but up to quite recently they were being increased with the obj driving China tea out.

And succeeded?—And succeeded, but at a great sacrifice of That takes place in other industries?—Undoubtedly.

It is a form of competition?—Undoubtedly.

There has been an increase of cultivation in Ceylon?—Yes, a India.

But not to the same extent in India?—Hardly to the same e in India, I imagine, the reason being that Ceylon had to mak her leeway. She was interested in coffee and cinchona, and owi the disease in the coffee they had to get rid of it and to find s thing to take its place. They had their capital in the soil. could not remove it from the Island, and they had to replace c which they did by planting tea.

And with a good deal of profit in some years?—Undoubt nobody works without.

Now, with regard to wages in South India, have they increasing in recent years?—Very, very slightly so. There been a slight increase of wages since I first went to India—a slight increase.

You were alluding to the prices of the articles the ryot h buy. I will exclude the famine year, because that was excepti but taking the period before and after that time, would you say prices have remained the same?—I should say so on the averag

You would not say that there was a general drift upwards?— I think not.

You were speaking just now of the gold mines of Mysore as b placed at a disadvantage by the rise of Exchange. Does that a to anything besides wages? Does that apply to machinery?— it would not apply to machinery.

Merely to wages and cost of labour?—Merely to wages and c labour.

Is mining labour a special class by itself, or does its rate of w vary with that ruling in other employments?—They pay r higher, I think, in the gold mines than elsewhere. The wor underground and is not popular.

So that there is an element either of disagreeable work or gr skill in it which involves an extra price?—Yes, and I think you

nd it is the case with all underground labour all over the world, hat it is rather higher paid than is the labour of the soil.

And that rate of payment may probably have tended to rise more n Mysore than in the tea provinces?— I cannot tell you that, but I hould imagine that they are paying much the same prices now as at irst, perhaps a little less. At first they would have to pay higher rices to get the men to go underground at all, but as the people ot accustomed to going underground they would have been able to ecrease their scale.

Would the wages be higher now than when they were first eveloping that field?—I do not suppose it is higher, but some few ears ago they were working on a level with other silver-using ountries. Since the closing of the mints they have been working t a disadvantage.

Would you say that the majority of the gold mines are in silver-sing countries?—I do not know that there is much in Peru. Mexico s a silver-using country.

But would you not say that the Cape and Australia and America vere three of the chief gold-producing countries?—It may be so, but do not think that will alter the fact that the Indian gold mines are aying more than they ought to pay, using the artificial rupee. Why should they be taxed at that amount? It is a direct tax on heir produce.

But are Indian gold mines at a special disadvantage as compared vith other gold mines?—Competition of course really does not much natter because it is a commodity, the price of which never really aries. You may say that that can always be produced at a profit o far as we have seen at present, but that does not alter the fact hat the Indian gold mines are being fined £250,000 a year.

As compared with what the cost of labour would be if India were n a silver basis?—Yes.

Assuming that nothing else varied?—I am speaking of silver at 26*d.* an ounce.

And that wages did not rise?—Yes, and there is no reason to uppose they would.

(Chairman): Your argument does not apply to countries which are ot silver-using countries?—No. I bring forward gold as a case ecause what happens in gold happens in every other product in India, and when you show that on a small field like the Mysore field here is a tax of £250,000, what must be the tax on the whole productions of India, because the argument as applied to gold applies to very other product in the country, that you are paying a higher value for your labour than you need by paying it in gold?

(Mr. Le Marchant): And that rate of wages, you think, would be he same, whatever the system of currency might be?—I am sure of t. I am quite sure that a low exchange would not alter the rate of abour.

Nor prices?—I imagine not. I have seen the rupee fall from 1*s.* 10*d.* to 1*s.* 1*d.*, and I never found any material alterations in prices.

But they are subject to variations?—They are subject to good or bad seasons.

So that you feel confident that prices would not adjust themselves to a different level of exchange?—I am speaking of the prices that the coolie pays. I do not think that they would alter.

(Chairman): I can just give the exact figures of tea in the United Kingdom retained for Home consumption. In 1891, 202,000,000lb. In 1892, 207,000,000lb. In 1893, 208,000,000lb. In 1894, 214,000,000lb. In 1895, 221,000,000lb. In 1896, 227¾ million lb.

(Mr. Holland): The tea planter and the grower of produce claim to have themselves the advantage of this 10*d.* rupee. Is not that so?—They want to have the advantage of it.

And you have spoken of it several times as being the true value of the rupee?—No, I will not say that, because the value of the rupee varies. I believe silver is 27*d.* an ounce now. I imagine that would make the rupee worth about 10½*d.*

But within those limits, do you not admit that so far from being the true value it is an artificially low value?—No, I do not admit that.

If the mints had not been closed, for instance, do you think the value would have been so low?—You have to take other factors into consideration. For instance, there has been lately a demand by Spain for silver which has sent silver up a penny or three-half pence; but if the mints had not been closed, I do not think we should ever have seen the rupee so low as it did go to.

The ground of your discontent is not so much that you cannot yourselves have the advantage of a low rate, but that your competitors in silver-using countries have that advantage?—Yes.

And therefore your competition with them is unfair?—Exactly.

(Sir A. Dent): Is there much tea grown in South India as compared with North India?—As compared with North India, the tea industry in South India is very small.

Is it 25 per cent. of the tea industry of India?—I should imagine it is not.

Is it 10 per cent.?—I could not tell you without reference to the figures, but I should imagine that of the cultivation of South India, taking tea and coffee together, probably tea is about a quarter of coffee, and, as estimated by the South India Planters' Inquiry Committee, the value of the estates in South India is £13,000,000, that is coffee and tea. So that, probably, the tea might be about a quarter of that. In Travancore, which is a very considerable province in South India, you may say that the whole cultivation is tea, and all through the Nilgiris.

From what port is that shipped?—Cochin, Quilon, and Calicut.

You say there are probably under 2,000 acres left in South India for the cultivation of coffee. That would apply to tea, would it not?—No, there is more available for tea than coffee. Perhaps I am not quite right in saying that there are not more than 2,000 acres available for coffee. I ought to have qualified that by saying that there are other places that are not now available, but could be made available; I mean there are no roads or railways.

As tea in South India is a comparatively small industry, I suppose you are speaking as much for Ceylon as for South India?—I should really speak, too, for North India as regards that, because our interests are identical. I speak for the whole body of tea producers.

But the planters of South India have rather amalgamated with the planters of Ceylon in presenting themselves before this Committee?—Yes.

You told us that 127 Superintendents had been dismissed recently, and that there was practically a panic in Ceylon?—Yes.

Personally, I was rather surprised to hear that, because I hear a good deal about Ceylon. May I ask if that is mere general public opinion, or is it more a private note?—It was a letter to me from my agent. I employ an agent, who is an old Ceylon planter, to get me orders for my tea seed, and it was he who gave me the information. He has been in Ceylon, I suppose, some 15 years, and I have no reason to suppose that his statement is not an accurate one.

When you say 127 Superintendents were dismissed, it might be thought from that that 127 estates had been abandoned?—Not in the least.

Possibly it is only 127 Assistants?—No, I do know that it is even that. I remember in the old coffee days, when coffee was dying out right and left in South India, the first means of reducing the expenditure was to dismiss the Superintendents, and the result was that five or six estates would be put under one management. I myself at one time had seven estates. All seven were under my management, without any other European supervision whatever.

The prospects of Ceylon, of course, have not improved in the last few years, but they have not come to abandoning their estates yet?—Yes, I believe they have.

You do not know that yourself?—No.

I suppose the planters of South India and Ceylon, with reference to China, are more afraid of what China is going to do than of what China has actually done, is not than so?—Partially, China has done a good deal already. She has already compelled us to accept a price that we never anticipated that we should have to accept.

I think that is an arguable point. Then you also refer to the Foochow Tea Improvement Company. Do you know anything of its working?—I know nothing of their working, but it would be easy to get hold of their prospectus in the city.

Have they got much beyond the prospectus stage?—I understand that machinery has been ordered and sent out to China. I know that.

Then, you alluded to the handicap of the 1*s.* 4*d.* exchange, as against the intrinsic value of silver. May I ask if you have ever studied the question of the copper cash in China?—No, I know nothing of that.

There is a great handicap there. I have heard it said that a few years ago you could get 1,200 copper cash for the dollar, but owing to the depreciation in silver you now get only 800?—I know nothing of China.

(Sir C. Crosthwaite): I understand you to say that in your experience wages have been practically stationary in South India?—Not absolutely, but practically stationary. We pay slightly higher rates than we did.

And you say, also, that the purchasing power of the rupee, as regards the articles consumed generally by the labourers, had remained about the same?—About the same.

That would mean, would it not, that the prices of food grains had remained about the same?—Not necessarily, because you remember that the estates in South India are rather inaccessible, and it does not pay to send the food grains out of the country. In my own district, for instance, the foot of the hills, from which I come, is 90 miles from a railway and the railway is some 150 miles from the seaport, so that the cost of transmission of the grain to the seaport is enormous and they prefer to sell it in the country to shipping it. That is the reason, I imagine, that the food grains have remained stationary; that applies generally to the whole planting District of South India.

That evidence merely applies to a certain tract?—It applies to the whole of the Southern Indian planting districts.

What do your coolies mostly live on?—They live on ragi, cholum, rice, curry stuffs, cocoanuts, and so on.

Is rice exported from that part of South India to Ceylon?—I do not think so. I could not say so with certainty; they may export a certain amount of rice from Tuticorin; I rather doubt it.

Has not the price of rice risen?—Only according to the season. Rice was very high last year.

Over 20 years, has there not been a great rise?—Not a great rise. Understand, I am speaking of South India, our planting district.

I understood you also to say that there has been no alteration of Indian prices owing to the variations of exchange?—The prices of our produce, do you mean?

Yes, the prices in India of produce?—Our produce in South India is not sold in India. We send it all to England. I do not think I could have made that statement.

You did not make it with regard to produce in India generally?—With regard to tea, certainly not. There has been a great fall.

(Sir D. Barbour): I think you said that the value of the tea and cinchona and coffee estates in South India was about 13 millions sterling?—Yes.

Do you know how they were valued?—By the South India Planters' Enquiry Committee—a Committee appointed by the Viceroy to enquire into the grievances of the planters of South India.

What year was that?—It was in 1896, I think. They took infinite pains with that enquiry.

Was that the market value at the time, or the cost of creating these estates?—I conclude it was the market value at the time.

You are not certain of that?—Well, the method in which they arrived at their valuation was to send round a series of questions to every planter in South India, requesting him to state the value of his property, and the wages he paid, and the percentage he made on his capital, and so on, and return the questions with the answers to the Committee, and then they formed their own opinion on the subject.

Every man values his own property?—I think so—yes.

So that we may assume that he did not put it too low; that would not be his interest?—Well, I should imagine his interest was to tell the truth, as every gentleman's is.

I do not accuse anyone of intentionally over-valuing his estate, but there is no reason to think that the value was put too low?—I should think in many instances it was put too low. I should imagine decidedly so, but I should imagine what was really done—I certainly did it in my own case—was to put the true value, and I know I could have put it at a higher price.

You put it at its market value?—I put it at what I considered its market value.

Is your own personal industry the production of tea, or tea seed, or both?—Both.

You said you thought the fall in exchange had not kept the rupee price higher for the person who used imported goods. Do you think that that can possibly be the case?—I think so, and I think you will find the figures I have given in my statement are correct.

I am not challenging those figures, but would not the rupee prices have been higher if the exchange had been lower? Must it not necessarily be so?—It depends what you mean. If you mean that rupee prices would be higher now than they would be 15 or 20 years ago, I should be inclined to dispute it.

I do not mean that?—If you mean that the prices would be, say, lower in 1897-98 than they were in 1890-91, I should be prepared to accept it.

I do not mean that either. I mean that if the rupee price of an imported article is 100, with the exchange at 1*s.* 4*d.*, it must been something more if the exchange was 1*s.*?—Quite so, but I t it requires some qualification, because the argument so far, by Government of India, has been that the importer now has to p far higher price than he had when exchange was high. That is the case.

I do not think the Government of India have said that?—Y have it here in black and white. "A country as a whole make gain in its international trade by a depreciation of its standard, higher prices received for exports being balanced by those of ports." That is what the Government of India stated, but hig prices, owing to the fall of exchange, have not been balanced in way, because in 1875 exchange was high, and yet the price of g in 1892 was considerably lower than in 1875, so that the argum does not hold good.

But the Government of India were dealing simply with the q tion of exchange. If the exchange is low the exporter gets a hig price, but the importer has equally to pay a higher price?—Tha a *sine quâ non*, of course, but you must remember that the im trade in India is insignificant comparatively with the export tr

I do not know that it is comparatively insignificant, but the q tion is this, that if exchange is low the importer must pay a hig price than he would have done if the exchange were high?- course he would.

You said you thought silver was a better standard than gold Undoubtedly.

Why is it better?—Because the goods of India compete with th of other silver-using countries, and if you are going to have a fi standard in gold you immediately handicap the Indian producer.

If the other country issued inconvertible paper, like Argent and caused a fall in the exchange, how would you meet that c petition?—I am not a currency expert, and I cannot answer questi of that class. I only know that provided there is a fixed curre in India, and we have to compete with China and the Straits other countries with ordinary standard, we are handicapped trem dously.

Do you think it is a permanent handicap?—Undoubtedly.

Why would it be so?—I think if India has a gold standard will import very much less silver, and so much more will go on market that prices will run down, which will give a bonus to ot silver-using countries.

Do you not think that wages as well as prices will rise in th silver-using countries?—No, I do not think there is any reaso suppose so.

(Sir J. Muir): I think you mentioned that you considered t you had retired from India for good?—I had not intended going ba

But now you feel that you will be compelled to return to India I know I shall.

Why?—Because I cannot live in England.

Why?—Because my income has been so reduced that I can afford to live here.

Reduced by what?—By the depreciation of the rupee, by t tampering with the exchange.

Then you feel, as it were, that you have a grievance against Government of India?—I think I have a most decided grieva which is shared by all producers.

It is shared by the planters of Southern India?—I know it is sha by all planters, and I am quite certain that if it were understood the natives, it would be shared by the natives. Unfortunately in I this sort of information very slowly percolates to the small produ and he does not understand the mischief that is being done him. soon as he gets to understand it, I imagine it will be a serious mat

Can you tell us about how much capital has been invested in in South India?—I should think about £3,000,000 sterling.

You have referred in strong terms to the effect that this polic the Government in closing the mints, and fixing the rupee at 1*s.* will have on you personally. Now, are you anxious lest y estates in South India should become unremunerative?—Tha what I fear.

Not merely that they may not give you any income on whic live—— ?—What I fear is that I shall have to put into my esta in order to keep them going at all, the income that I have out my estates altogether. I fear that my income will be less than expenditure on the estate.

Then, with regard to the other planters who have solely t estates to depend upon, who perhaps may be financed by house Madras, or it may be in London, what will be the effect upon th

The estates will be taken over eventually, I imagine, by the firms who financed them. That happened before in the case of the coffee disaster in Ceylon; the estates which got involved to the coast firms were taken over by the coast firms, and there was widespread ruin among the planters.

We had a very leading banker before us recently who spoke of his action of the Government of India as being, in his opinion, arbitrary and despotic—do you share his views?—I not only share his views, but it seems to me as absurd for the Government to try to artificially fix the value of the rupee as it was for James II. to melt down brass cannon and coin them, and call them shillings. You will not get the outside world to accept your artificial standard. You appreciate the coin beyond its full value, but the world will not accept it; it can only circulate in the country; it would probably cause a revolution in any other country but India that undertook it.

You mentioned, in addition to tea proper, that you were a producer to a considerable extent of tea seed?—Yes, I am.

And that you had found it impossible to sell any of your seed for next season?—Yes.

You talk of that as an indication that the planters of South India have got frightened at the prospects of their business being seriously imperilled?—I think that is the reason entirely. I know of no reason for it otherwise. I have been able to sell before. I cannot sell now.

Do you sell it entirely in Southern India or in Ceylon partly?—Entirely in South India.

Your estates are in Travancore?—Yes.

The planters of South India seem to feel that they have a strong grievance against the Government of India in consequence of this arbitrary proceeding. Have they suggested any means whereby they might get relief from this injury that they are sustaining?—The planters of South India are perfectly willing, should the Government of India find it necessary to make good the deficit, to submit to an export duty on their produce in order tc make good any deficit there may be. But in saying that, of course, they assume that it would be put on the produce of India in general; I mean on all produce, wheat, jute, hides, and everything.

Have you considered the question as to an increased tax on imports?—I do not think that you could do it by increasing the tax on the imports. There is already a five per cent. import duty, and it seems to me only fair that if revenue is required, it should now be raised from the exports.

(Chairman): Who pays the duty that is put on the exports?—We do not pay any now.

But suppose a duty were put on exports, who would pay it?—I suppose the producer.

Do you think so? Suppose Government put a duty of 2*d.* in the pound on tea exported, who would pay that extra 2*d.*?—I suppose as it was sent from the port of shipment——

I do not mean to say who would find the coin, but who would be the ultimate payer? Would not that increase the price of the tea in the London market?—I do not think it would, because you have got China as a factor.

But you must pay it on all exports?—I mean Indian exports.

You propose that the London consumer shall be liable to have the price of his tea imported from the British Empire raised so that he will have to pay a higher price for it than if tea were imported from China?—I do not think he would have to pay a higher price for it myself. Because I think if we had a very small tax, say 3 per cent. on tea, our price in London now would be sufficient to cover it.

Do you mean that you have such a large margin that you could afford a duty of 2*d.*?—I did not say 2*d.*, I said 3 per cent.

But the principle is the same?—Hardly, because at present we are paying a duty of 40 per cent.

(Sir J. Muir): In reply to the Chairman you are making a comparison; that is to say, you and the planters of Southern India consider that you are practically loaded just now by a heavy duty in respect of this 1*s.* 4*d.* exchange, and that suppose a 3 per cent. duty were put upon you to meet the Government budget——?—It would be infinitely preferable to paying the disguised duty that we now pay.

(Sir F. Mowatt): You said that the effect of the change from a silver standard to a gold standard in India was so severe, that if it had been applied to any other country it might have caused a revolution?—I did not say that, I think. I said that the artificial raising of the rupee, I believe, in any country that had the intelligence to understand what effect it would have would have caused a revolution. I believe that such a measure of legislation would have been absolutely impossible in this country, granting that this country had a silver currency. I do not believe it would have been possible to have done such a thing.

But there has been a change from a silver standard to a gold standard in Germany, has there not?—Yes; but I was speaking of the artificial appreciation of the currency, not of the introduction of a new standard. I said the artificial appreciation of the currency, supposing you have a rupee at 2*s.* and you arbitrarily call it 2*s.* 6*d.*, I say that would cause a revolution. I say that the introduction of a gold piece to represent 2*s.* would cause a revolution.

(Chairman): You object to a gold standard for India, because it would put India into such a disadvantageous position in competition with silver-using countries?—Yes.

Are you aware that 80 per cent. of the trade in India is done with gold-using countries?—Yes, I am.

How would that affect your opinion?—Whether you introduce gold or not, our wages must be paid in silver. As I understand it, this gold is not to circulate, it is to be hoarded.

That is not the point; that is a detail of one scheme. I understood you to say that you objected to a gold standard for India altogether, no matter how worked out, because it would put India at a disadvantage with silver-using countries?—Yes, because we compete with silver-using countries.

And you compete with gold-using countries?—No, we do not compete with gold-using countries, we compete with silver-using countries. Our goods are almost all sent to Europe.

To gold-using countries?—To gold-using countries, and are sold in gold-using-countries; but we compete with China and the Argentine.

But you compete with China so far as tea is concerned in London?—No, we compete with China so far as tea is concerned in China.

But you send your tea to London, and they send their tea to London, and you beat them because you have a better article which you sell at a lower price?—But the China producer can buy more silver than I can; therefore he has an advantage. I compete with him in his own currency.

You say you are not a currency expert, and you need not answer this unless you like; do you not think that the standard of value and the medium of circulation should be liable to as few fluctuations as possible?—Yes.

Then putting the Government out of the question, let us take the enormous fluctuations in the price of silver?—I quite admit all that, but there have been many factors to make silver fluctuate. If the Government of India would adopt the policy suggested, if they would reopen the mints, undoubtedly silver would fluctuate at first, but I believe the rupee would gradually steady down, and keep its relative value with silver.

Is not the price of silver affected by the cost of its production, and the increase or decrease of its supply?—Yes, but there is no reason to suppose that its fluctuations would be any more violent than those of any other product. The mistake that has been made is looking on silver as silver. If you would only look upon it as a marketable product just as tea or jute, or any other product, there is no reason why it should fluctuate more violently than any other product.

You say that an artificial coinage would be of no value outside India?—No.

I agree, but how do you apply that to the artificial coinage that we have in this country?—How do you mean artificial coinage in this country?

What is the intrinsic value of our shilling?—It is not the coinage of the country—it is not the standard.

I know. We have a gold standard, but we have a token currency?—You have a token currency, and by law you cannot pass more than a certain quantity of it—forty shillings. A shilling is not worth the twentieth part of a sovereign.

Does it not circulate as the twentieth part of a sovereign?—Only by law.

No, there is no law which enables you to get gold for silver?—There is a law which prevents your tendering more silver than the receiver likes to have, which practically amounts to the same thing.

Practically the shilling does circulate here, although it is a token coin?—It circulates as a cowrie does in India. You find in India the cowrie used as a medium of circulation, but it has no value.

My point is that all token currencies partake of that element?—Yes.

Now you said that there was a loss to the native by a high exchange?—By an artificially high exchange.

Where does that come in?—He receives less for his produce.
Would not that mean lower prices?—Where?
If he has to sell?—He gets less if he has to sell.
But you said prices had not changed?—No, I beg your pardon; I qualified that statement by saying that the prices that our labourers pay have not changed. The produce they use for subsistence cannot be sent out of the country owing to the enormous cost of transport; they have no means of sending it. It is a curious fact that in our hills the prices of grain have kept steady; but if you take rice that is sent down to the coast the price has risen enormously.

THE EVIDENCE OF MESSRS. CHRISTIE AND LEAKE.

THE following is an analysis of the evidence given before the India Currency Committee by Messrs. Thomas North Christie and William Martin Leake, of Ceylon:—

Mr. Christie has resided in Ceylon for 24 years, and owns tea estates and other property there; represents Chamber of Commerce of Ceylon and Planters' Association of Ceylon. Mr. Leake is Secretary of the Ceylon Association in London.

General information and statistics as to tea planting in Ceylon:—Tea planting is the chief industry of Ceylon. Tea planting was introduced after coffee had failed; Tea planting has grown very rapidly; Tea companies and private producers; the wage-earning labourers are Indian coolies from Madras; women and children, labour of; Acreage now under cultivation; there is now little land available for the extension of tea cultivation; Annual production of tea in Ceylon; Price of Ceylon tea landed in London has fallen of late; Exports of tea from Ceylon; Overproduction of tea; Profit on production of tea, and dividends earned by tea companies; Capital value of tea estates in Ceylon; While exchange was falling the capital value of tea estates rose.

Currency of Ceylon:—Currency of Ceylon is the Indian rupee with local subsidiary decimal coinage; Indian currency was voluntarily adopted by Ceylon; Practically impossible for Ceylon to adopt a different standard from that of India.

Influence on Ceylon of fall in exchange before June, 1893:—Prosperity of Ceylon before June, 1893; Fall in the exchange value of the rupee benefited producers, because produce is sold for sterling, and expenditure is fixed in rupees; Wages did not rise in Ceylon while exchange was falling; The market price of the rice which the tea planters supply to the coolies at a fixed rate has risen slightly; The fall in exchange did not necessitate increased taxation in Ceylon nor cause embarrassment to the Government of Ceylon; Direct taxation in Ceylon is light.

Fluctuation in the exchange value of the rupee:—Fluctations in exchange unimportant; Fluctuations in exchange do not prevent the influx of capital.

Effects on the Ceylon tea industry of the closing of the Indian mints: (1) Direct effect: the cost of production is increased in consequence of the rise in the exchange value of the rupee, because that part of the sterling price which is remitted to India to pay wages, &c., realises fewer rupees, (2) Indirect effect: tea-producing countries which are on a silver basis are favoured in competition with Ceylon, by the divergence between the value of silver and the exchange value of the rupee; Competition with China: before the closing of the Indian mints, Ceylon, competing on equal terms with China, drove her out of the English market, nor is it feared that she will regain that market, but the closing of the mints has prevented Ceylon from driving her out of other markets; Duty on tea in China: Competition with Japan: Japan benefits in competition with India and Ceylon, in consequence of the low value at which silver is rated in the Japanese currency.

The disadvantages under which Ceylon labours in competing with countries on a silver basis have compelled the Ceylon planters to accept a lower price for their tea; Stringency of the money market in Ceylon; The effect of the closing of the mints were at first slight, but since the exchange value of the rupee has reached the vicinity of 1*s.* 4*d.* the profit on cultivation has decreased, capital has left Ceylon, and the extension of cultivation has been checked; Owing to the conditions of the production of tea, the effect of diminution of profit in checking exports shows itself slowly.

The present currency system in India and proposed modifications:—A continuation of the present currency system in India would strangle the producing interests in Ceylon; Objections to the proposals of the Government of India; Objections to a gold standard which would artificially raise the value of the rupee.

Views of witness as to measures that should be adopted reversion to a system of currency based on the bullion val silver would be revolutionary; Witness is in favour of re-ope the Indian mints and imposing a fixed import duty on silver a fixed seignorage on the rupee; If an import duty were impos India, the Ceylon tea planters would be willing to bear a sir duty.

Amount and nature of Ceylon's gold obligations.
Balance of trade between Ceylon and Great Britain.
India does not lose by a fall in exchange.

POINTS FROM THE FIRST BLUE-BOOK.

REVIEWING the first Blue-book on the evidence taken be the Indian Currency Committee, the *Times* thinks that, bro speaking, two facts stand out in relief—that the great majorit the witnesses consider it impossible to reopen the mints to sil and that the plan of the Indian Government, though not defin condemned with as much decision as the re-opening of the m does not meet with hearty approval from any except members o official class. The evidence of Mr. Alexander Martin Lind Secretary and Treasurer of the Bank of Bengal, occupies more s than that of any other witness before the Committee. Mr. Linds plan was gone into at great length, and nearly all subseq witnesses criticised it. Clever as the plan was admitted to be, it regarded as unworkable by the majority of the best judges, inclu Lord Rothschild, Sir Samuel Montagu, and Mr. Raphael. Sir Ed Vincent favoured the Lindsay plan, but with modifications, wi altered it considerably. Mr. J. E. O'Conor, the Director-Genera Statistics to the Government of India, supplied the Committee a great deal of valuable evidence respecting the effect, or absenc effect, of the closing of the mints on the trade of India. The fol ing extract from his evidence refers to the tea trade:—

879. Has the fall in the price of tea been in any way caused the closing of the mints and the rise in the value of the rupee do not find any evidence that that is the case; but there is a g deal of evidence to the effect that there has been for the mon what is called over-production—that is to say, that the produc has outstripped, for the time being, the demand.

880. (Sir D. Barbour.) Do you point to that as the cause of fall in price?—I should feel inclined to do so.

Those who wish to see what the tea interest has to say on this p should read the evidence of Mr. Granville Lowther Acworth and Messrs. T. N. Christie and W. M. Leake, who represent South India and Ceylon. These gentlemen admitted that the quantity tea sent from Ceylon has continued to increase since the closing the mints, but complained that it has prevented them from mak progress in the United States and Canada. Their evidence is gi in the following passage, the questions being put by Sir H. Fowler

4542. I am old enough to remember when the proportions between India and Ceylon and China were eighty and twenty; no think it has turned gradually round, and in round figures the proc tion from India and Ceylon is about 80 or 89 per cent. of the whc —It is about nine-tenths.

4543. With China your competition is increasing. You are hav more and more year by year the command of the market?—No, not that?—Up to the closing of the mints we were on even te with China and we drove China practically out of the Eng market.

4545. The closing of the mints has not aggravated your c petition?—Oh, yes greatly.

4546. I went you to show us how. Let us take the two conc cases, China and Great Britain. Great Britain buys from you n than she buys from China. Why? Because you sell the article at the lowest price?—Yes, I should think that is it.

4547. Then you have the upper hand of China in that respect No, not necessarily. The consumer, I think, might consider tha would get better value for his money when China is offering at and ours at 6½. He may have thought so when China sold at a hig rate relatively, but when China tea can go down, and we cannot must suffer. But I do not fear for the English market to any g extent. We shall keep China out of the English market now bec we have driven her out. We have disturbed the usual line trade as regards England and China, and one does not fear t unless something serious happens to British grown teas, China ever again reassert herself in England. But our great and incr ing production hoped to find a number of other markets where C

as an enormous hold, and we had expected, and I think with some justification, that if we competed with them on even terms we should have done very much the same in those other markets as we did in the English market—to the detriment of China and Japan, no doubt, but to the benefit of our colony and therefore of Great Britain. The exports from China to the United States and Canada are still over 0,000,000 lb. We have made comparatively little progress there. During the last year we have made very little impression. Yet we are dealing with English-speaking people, people in intimate relations with ourselves, and we say our progress ought to have been very much greater. What is the reason of our failure? China can put her tea into those countries at $3\frac{1}{2}d.$ or $3\frac{3}{4}d.$ a lb., and we cannot do the same, and consequently the consumers there consider that they get better value for their money. They do not necessarily consider that China tea is better than Ceylon tea, but at the price at which the two can be offered to them they think they are getting better value for their money. The same thing applies to Russia. The export from China to Odessa only, not counting what goes through London, which is a very large quantity, is 22,000,000 lb. We have made very little progress there during the last couple of years.

The evidence of Mr. J. Finlay, Secretary to the Government of India, in the Finance Department, expresses in detail the views of the Indian Government in which the adoption of a gold standard is proposed. Sir A. P. MacDonnell, Lieutenant-Governor of the N.-W.P., expressed the opinion that in the region with which he is concerned the volume of currency has been ample ever since the closing of the mints.

On the other hand, Mr. Stephen Ralli's view is that trade has been interfered with since 1893, by a deficiency of currency. His evidence goes to show that latterly there has been proof of the scarcity of rupees.

The conflict of evidence (says the *Times*) between Mr. Ralli and Sir Patrick MacDonnell is probably susceptible of reconciliation if we note that Sir Patrick appears to be speaking of the native population of rural district, while Mr. Ralli seems to be thinking of the monetary difficulties of a more wealthy class of traders, native and European, which were, no doubt, severe.

Mr. Henry Lewis Raphael said that "the closing of the mints was the result of fright."

In reply to the question whether a gold standard is possible in India, Mr. Raphael said that in order to establish it the Government must reduce the silver in circulation, since, as he tersely put it, a gold currency means that all large payments are made in gold, and that silver is confined to token money for small amounts. He believes as the population grows up and as India increases in prosperity, and as her trade increases, it will not only be undesirable to decrease the silver circulation, but it will be expedient to increase it. Therefore he is against any system which decreases the silver currency. Mr. Raphael had a plan of his own, the general effect of which would be that the Government should, through an office in England, always buy and sell transfers at 1*s.* 4*d.*, charging $\frac{1}{2}$ per cent. commission. This, he thought, would fix the exchange. A reserve would have to be kept in England, partly in gold "to be acquired by degrees" and partly in the form of "a credit to issue from time to time up to £15,000,000 of Treasury bills."

Mr. Raphael's views were criticised by Sir Samuel Montagu, who was in favour of "going slow." Lord Rothschild and Sir Samuel Montagu were in favour of a cautious modification of the *status quo*, and they both pointed to the example of Russia as the proper mode of arriving at a gold standard. They both also pointed to the rapid annual increase in the production of gold, which would, if it continued, as was probable, greatly facilitate the task of the Indian Government in gradually establishing a gold standard. Sir Edgar Vincent also laid stress on this point.

LEAF-DISEASE.

THE following is a full report of the very interesting discussion on Leaf-Disease that was held in Committee during the last Annual Meeting of the U.P.A.S.I. on 10th ultimo. We reprint Mr. Harris' open remarks and Mr. Cameron's final speech—both given in open meeting—so that the sense of the report may be complete :—

On this subject, before the meeting resolved itself into Committee for an informal discussion with Mr. J. Cameron, Superintendent of Mysore Government Gardens in Mysore, Mr. J. A. HARRIS (S. Mysore) made the following explanatory statement :—"I am pleased to be able to report that in Mysore during the past year we suffered comparatively little from *Hemeleia vastatrix*. Its presence was noticeable throughout the monsoon and up till the end of November, but it never assumed a virulent form and gradually passed away. We had a very dry season, no rain falling from the end of October till the beginning of April, save some slight showers late in December, and to this no doubt was due the subsidence of the pest. But though these droughts, to which Mysore is subject, and the comparative isolation of the estates are a great safeguard against the spread of the spores, and practically assure us from the disastrous results which took place in Ceylon, we are still left to face the fact that in seasons favourable to their development we shall probably continue to suffer serious losses. We must not, therefore, allow the comparative immunity of some years to make us oblivious to danger. The discussion at our last meeting, though the object some of us strove for was not achieved, has not been altogether fruitless, as we shall hear later on when the Agricultural Chemist question is discussed. Mr. Graham Anderson, in an exhaustive paper which he has laid on the table, has referred in his preliminary remarks to the criticism to which my views were subjected. Well, criticism is most wholesome, but I regret to have observed in some quarters an inclination to decry the consideration of such subjects as *Hemeleia vastatrix* at our meetings on the ground that it is unwise to announce their existence, as by so doing our industry is prejudiced and its financial position compromised. I venture to make a protest against this view. In the first place there are other sources of information besides the Reports of the U.P.A. Meetings, and if there were not short crops would reveal the situation. In the second place, I maintain that our industry so far from being discredited by such discussion will gain in estimation, as it will be seen that we are alive to dangers common to all agricultural enterprises, and are striving to mitigate them. In the third place, I say that if scientific investigation, as we called it last year, were to be excluded from our Agenda paper, the U.P.A. would be deprived of one of its most important functions, namely the holding of deliberations regarding matters which vitally affect our industry. And, lastly, I assert we have a perfect safeguard against our industry being depreciated in these discussions, in the fact that self-interest ever prevents a man from running down that on which his own prosperity depends."

As there was no formal motion before the meeting, Rule 22 was by consent suspended to make Mr. Harris' speech in order.

(IN COMMITTEE.)

Mr. PARSONS (Coorg) :—Recently, since the last meeting, Mr. Cameron has made a tour of inspection through Mysore and has sent in a report. I should like to ask him whether, as a result of his observations, he thinks that leaf-disease has been less than in the previous year.

Mr. J. CAMERON :—I made a tour in February, 1897, through the Munzerabad District, but there was not much disease. I went over a number of estates and saw little disease at the time. But I hear through planters with whom I have been in correspondence that what Mr. Harris says is quite true, that the effects of leaf-disease are not nearly so great this year as one would be led to expect from what one saw last year.

Mr. H. G. PARSONS (Coorg) :—In your report, which I read with interest, you say you saw Mr. Brooke-Mockett's hybrid coffee bearing a fine crop. Have you any information with regard to what the crop was? Have you any further information as to the results achieved?

Mr. J. CAMERON :—I have no direct information other than that

I received from Mr. Crawford or Mr. Mockett, but I believe the hybrid coffee bears very well indeed.

Mr. H. G. PARSONS:—Would you be inclined to suggest that the line taken by Mr. Brooke-Mockett is one clearly indicated to all? If so, do you think we would be great gainers if we went to a certain amount of expense to try and carry out systematically what Mr. Mockett has done more or less by a fluke?

Mr. J CAMERON:—I do. Personally, I am much in favour of hybridisation. I think that if you go into the thing on a small scale, you will find that in course of time something good will come out of it.

Mr. J. A. HARRIS:—How long do you think it would take to establish the result of these experiments?

Mr. J. CAMERON:—About six years before one could prove what kind of cross it was. In this connection I may tell you that I have started a small experiment of my own in the Lal Bagh. I have about 130 bushes, in three different kinds of coffee, under irrigation. When these begin to flower, I shall at once begin to fertilise, and when, after being fertilised, these plants come into fruit, I shall be able to cultivate and judge the results of hybridisation. In this case it would not take more than three or four years. I don't mean to say the most favourable results will come from these young plants. I think, perhaps, that the experiments should be made with older plants and not with young seedlings. Of course, there may be results from seedlings giving their maiden crop; but it is a good deal more probable that better results would ensue from plants of ten to fifteen years.

Mr. J. G. HAMILTON:—I do not think you have quite answered what Mr. Harris intended to ask. What Mr. Harris wanted to know was, how many generations it would take to fix a type. What you have said points rather to the fertilisation of seed every year.

Mr. J. CAMERON:—It is not necessary to fertilise every year.

Mr. J. G. HAMILTON:—It is said that the second generation has a tendency to revert to one type or another.

Mr. J. A. HARRIS:—In how many years would the new types cease to throw back, because some who have studied the matter closely say that it takes from 20 to 30 years to fix a type.

Mr. J. CAMERON:—That is difficult to say, but certainly it is not 20 or 30 years. It may be a matter of six years in the first experiment; from which you may get a type of coffee that suits all your requirements. You may, on the other hand, get many unsuitable types.

Mr. H. G. PARSONS:—Would it be possible for us as amateurs to select these hybrids?

Mr. J. CAMERON:—I think it would.

Mr. GRAHAM ANDERSON:—With regard to Mr. Brooke-Mockett's hybrids, I may say that the experiment has now entered upon its second phase. He has got now trees which he has named the Improved Nak Nad and others the Improved Coorg. It is really wonderful what sports these hybrids have produced. By a system of careful management, he has picked the fruit of all the second generation of a promising nature and has planted the seed separately in marked baskets, and so this very useful experiment is proceeding. In regard to a number of trees, some are true to the parent stock, and others are sports or different strains altogether. He had an idea that if he kept the different strains separate and planted them out under auspicious conditions, it would be possible to perpetuate them. Mr. Brooke-Mockett's manager is an extremely clever man and has taken a great interest in this experiment. He has now got to the stage that when the young seedlings have grown to a certain extent, he is able to discriminate between them and say that they will be in accordance with one type or another.

Mr. J. CAMERON:—I am delighted to hear it. I had no idea that Mr. Brooke-Mockett had gone into the matter so fully.

Mr. H. G. PARSONS:—Mr. Cameron, I would like to have a straight answer to this question. Is it your opinion that strains of seed are deteriorating?

Mr. J. CAMERON:—I think it must have deteriorated, for reason that you have been going on with the same class of co for the past 40 or 50 years. You would do better by get fresh seed from outside. Any kind of cultivation that goe for a long period without change must gradually deteriorate, a time will come when sterility will set in.

Mr. F. J. PARTON:—Can you not increase fertility by care cultivation?

Mr. J. CAMERON:—You can increase fertility by a care selection of the seed, choosing large and heavy beans, & but that alone will not do sufficient good. Selection come good deal lower than hybridisation as a means of improv your crops.

Mr. J. W. HOCKIN:—As we have had considerable experienc hybrids in Wynaad, the meeting may like to hear of it. Abouth a dozen hybrids, discovered accidentally, are now large trees be ing crop. Two are, I believe, no good, as the crop generally fa The others are grand trees filling a space about nine feet cub five or six years of age, and bearing heavily without any sign leaf-disease. They have, of course, been taken every care of manured heavily, but even so, the growth and vigour is very markable. Their seed has been used for planting out. So gentlemen tell me about 15 to 25 per cent. of the second generat come true to type; but one gentleman has a clearing in which says all but a small percentage are good vigorous trees free fr leaf-disease, though not all, I take it, of the same type as the f generation. It will probably take a long course of careful se tion to establish a fixed type. I myself had Liberian nurse for five years without finding a hybrid. Last year I fo three hybrids, which were easily distinguished, as they were feet high when the Liberian plants were only one foot hi The rapidity of the growth of the hybrids is very remarka At two years *from seed* my plants have the following measuremen one $6\frac{1}{2}$ feet high by 5 feet across; one $5\frac{1}{2}$ feet high by 6 f across; one 5 feet high by $5\frac{1}{2}$ feet across. The second tree a few berries on it. All hybrids of whatever generation v grow when it is quite impossible to get Arabica supplies to gr I had another experiment which promised well, but turned a failure. In the parchment coffee, picked from Arabica w Liberian coffee growing in it, I found a considerable number very large canoe-shaped beans. These from their extraordin size I concluded must be hybrids of which Liberian was the fath and Arabica the mother plant. I thought this an extraordinar good discovery, as I had a very large bold seed with a go Arabica colour and appearance. Unfortunately, the pla raised from these seeds got leaf-disease as badly or worse th ordinary Arabica, and turned out of no value. This would se to prove that the vigour to resist leaf-disease only belongs hybrids of which Liberian is the mother plant.

Mr. H. G. PARSONS:—Are we quite right in selecting Liber as a means of improving our strains, or would you suggest a other varieties?

Mr. J. CAMERON:—It is difficult to say. I do not know that have had enough experience in the matter.

Mr. H. G. PARSONS:—Are there any other strains?

Mr. J. CAMERON:—Oh yes, there are the varieties that can got from Jamaica, Johore, Mocha, and West Africa.

Mr. H. G. PARSONS:—But these must all have come from Ara originally.

Mr. J. CAMERON:—Possibly in most cases; but it must ha been so long ago that they are bound to have incurred so sort of change from the original type.

Mr. E. G. WINDLE:—In Jamaica, as far as I know, coffee d not suffer from leaf-disease; but with us Jamaica coffee suff almost as badly if not worse than the other varieties.

Mr. J. CAMERON:—It must have acquired the disease.

Mr. J. W. HOCKIN:—I tried imported seed once. I get real ocha coffee from Jamaica, not that sold in London as Mocha, t what is known in Botany as Mocha, which has a very small an—no larger than a split pea. It was planted alongside Arabica d did far worse. We have tried Java, Blue Mountain Jamaica, abica, Pulney, Maragogipe and other varieties, and with the ception of Nalknaad and Liberian, I believe every imported riety has suffered far more from leaf-disease than the indigen- s variety. The only benefit we ever derived from change of seed as by getting carefully selected seed from the best plantations in r own or neighbouring districts with a slightly different climate, il and elevation. The benefit was derived as much from the perior vigour of the parent trees as from the change of condi- ons, I think. I believe if we could once get rid of leaf-disease, e should find coffee well manured or growing in rich soil would op as well as ever. My reason for so thinking is that, when- er we get a season in which leaf-disease is in abeyance, our esent coffee crops very well.

Mr. SPROTT:—Have you any experience of *Coffee stenophila?*

Mr. J. CAMERON:—It did not succeed with me, so I sent the maining seedlings to Coonoor. I was reading a valuable count of it the other day in the *Kew Bulletin.*

Mr. SPROTT:—I have some sent out to me which has been ported on favourably. It seems a vigorous variety, almost of e same type as the hybrid between Arabica and Liberian.

Mr. GRAHAM ANDERSON:—When in London the other day I ade a point of going to Kew to make enquiries about it; but r. Thiselton Dyer said he could not give me any information. s I was leaving, however, he sent after me to say that a gentle- an who lived in the place where *Stenophila* grows had come in make enquiries about machinery for pulping Liberian coffee. had a very interesting conversation with him, and he promised send me some *Stenophila* seed in exchange for the seed of some ick-growing shade trees. He said that *Stenophila* was a quick rower, and in its own country grew at a low elevation. I may ention that the gentleman in question was the Botanical irector of Sierra Leone.

Mr. CAMERON:—It grows wild at sea level, but in its wild ate it is not productive. Under cultivation, however, it gives xcellent results.

Mr. H. G. PARSONS:—Liberian seems to me to be the rongest plant constitutionally that we have.

The CHAIRMAN:—As far as that goes, my experience is that hen leaf-disease attacks Arabica, it destroys the chance of a op, but when it attacks Liberian it kills it bang out.

Mr. J. W. HOCKIN:—As I said last year I have had a good deal experience of Liberian, both healthy and diseased. When iseased I always find that it begins to die from the top, the young oots turning red long before leaf-disease touches the leaves. he tree behaves as if it had canker. I think it is some damage the bark or root which causes the sickness. Once the tree gets ck, it gets leaf-disease worse than Arabica, loses all its leaves, nd often some or all of the branches die back, and sometimes e stem too. I think the reason for the sickness is that Liberian ves a mild, equable climate, and dislikes equally the long rought and heavy downfalls of rain it is subject to in Wynaad some seasons. My own Liberian, which is now six years' d, is grown principally on cool slopes under high shade, and is ite healthy. Some suffered last year from the excessive wet the monsoons of 1896 and 1897, but has quite recovered this ar. Some suffered last hot weather from drought in a hot nsheltered flat, and I had to mulch the trees with cattle anure to save them. They turned brown as if burnt by re. On an adjoining slope with a north aspect and in another ith a south aspect, well shaded, the Liberian did not suffer. great deal of Liberian in Wynaad has been planted in very hot places unshaded, and in places with a retentive clay soil, neither of which it seems to like. On cool, well-shaded slopes, with a good natural drainage, I find it does very well, even when it fails under other conditions.

Mr. PARSONS:—Would Mr. Cameron advise us to plant our estates here and there with Liberian?

Mr. CAMERON:—No, I would not. I was rather amused a short time ago to read a small para. sent to *Planting Opinion.* The writer said that, a year or two before, he had planted Liberian all over his estate with *Arabica,* and he was gratified to find that the Arabica plants had vastly improved—a condition which he believed was due to having planted Liberian. It struck me at the time of reading that he was utterly beside the mark, and did not know what he was writing about.

Mr. J. G. HAMILTON:—I have done that, and found that Liberian blossoms before *Arabica,* and it was improbable, therefore, that a hybrid could result.

Mr. CAMERON:—In my opinion, it is very doubtful if any good could result. Even if the two varieties did flower together, you might get a hybrid here and there; but you would never get any control over the experiment, and the whole thing would become mixed. I must warn you against trying to get hybrids indiscriminately; you may get all sorts of rubbish that will do your estates more harm than good if they are allowed to propagate; and this must be prevented at all hazards. I do advise, however, that whatever is done should be done on a small scale, and systematically. These experiments should not be allowed to intermingle in any way with the regular cultivation, but should be kept separate; the seedlings supposed to be of new strains should be carefully watched, and as soon as they show signs of deterioration they should be destroyed. It is only when you are quite sure that you have got something superior and worth cultivating that you should put it to the test in a separate place, and go on cultivating until you confirm your idea or otherwise.

Mr. PARSONS:—If you saw Liberian growing, could you point out certain trees which you would suggest had better be destroyed.

Mr. CAMERON:—I could not do that until I saw the fruit.

Mr. PARSONS:—Have you had any success with your grafts?

Mr. CAMERON:—I have tried grafting, but can't say that it has been successful.

MR. J. G. HAMILTON:—Some years ago Mr. Cameron sent me some grafts, and the produce seems to be very inferior and not abundant.

Mr. H. O. NEWPORT:—I would like to ask Mr. Cameron whether he can give any reason for the tendency Liberian has over Arabica to be attacked with scale pests. I have noticed that on the Pulneys it appears a month earlier on Liberian than it does on Arabica, and is much more violent in its effects.

Mr. J. CAMERON:—I do not know really, unless it is because Liberian has a more succulent leaf. Mr. Anderson, do you know if Mr. Brooke-Mockett's plants are ever affected by scale pests?

Mr. GRAHAM ANDERSON:—No, they are absolutely free from that sort of thing. With regard to scale-pests: the only scale-pest we have is that which attacks the *Cedrela toona.* It looks like a limpet, and the bark is covered with a white dust and the coffee round it is covered with a black honey-dew. There is one thing to be said about the *Cedrela toona,* and that is that we have tried sulphur and lime as a remedy against the pest and found it very good in the early stages, but whether it is accidental or not I cannot say, because we are apt in these matters to mistake cause and effect,—when we examined the spot, we frequently find in the vicinity the decaying roots of old jungle-trees, covered with fungoid filaments. I have naturally concluded, and I have been borne out in my conclusion to some extent by the report of Dr. Watt, that it is an absolute fact that when a tree gets scale insects combined with other signs of ill-health,

it is caused by insanitary surroundings. I venture to suggest that the presence of a decayed root may have caused a state of ill-health favourable to the invasion of scale insects. I mention this matter that it may engage the attention of planters. Only the other day I cut down a *Cedrela toona* which was attacked with scale. I had it dug out, and set men to find out what was near the hole. There were four large logs absolutely covered with fungoid filaments. We have had the pepper vine attacked in the same way. Some samples sent home to a Professor at Kew have elicited the opinion that it is due to some subterranean fungus which attacks first the trees which supports the vine and then the vine itself. It is much the same as stump rot, which every planter has noticed, the worst of which is that once you commence to cut down the jungle-trees which are liable to it, you get a ring of coffee all round dying out too, due evidently to the same fungus extending from the stumps of the forest trees to the roots of the coffee. With regard to the pepper vine, an extraordinary thing has been noticed in some of our clearings. In planting pepper one naturally looks for straight trees to train the pepper up. One of these, the *Myristica magnifolia*, which is extremely suitable for the purpose, grows all over our forests, and naturally they were trusted as supports for the pepper. The tree, however, has a funny peculiarity: it is extremely gregarious in habit, and will only live in clusters in the forest. Immediately we began to thin them out, the others supporting the pepper began to die out too.

Mr. J. CAMERON:—That is a remarkable confirmation of what I have seen. There were a number of Liberian plants, some of them in the open, others under shade. Those in the open suffered greatly from exposure and want of irrigation, the result being that the trees died back and, in a number of cases, were attacked with leaf-disease. It is quite true that this particular species of coffee requires high cultivation, ample shade and plenty of moisture; but when we give it plenty of shade and moisture, we lay it open to attacks from fungoid disease. The difficulty is to know where to draw the line.

The CHAIRMAN:—There is one question I would like to put Mr. Cameron. When the potato disease was bad in Ireland—I believe the potato disease is similar to *Hemeleia vastatrix*—they imported a blight-proof variety. These were blight-proof for some years, and then the disease adapted itself to the new variety, and now they suffer just as badly as the former potato. Do you not think that this is likely to happen to our coffee, namely that *Hemeleia vastatrix* will adapt itself to any new variety.

Mr. CAMERON:—That is a difficult question to answer. I should suppose that by improving the constitution of any given coffee it would be proof against disease for a long series of years, and eventually the disease would die out. Probably it would. I think that by strengthening the constitution of plants and introducing new strains we might have kinds of coffee which would resist disease to such an extent as to make it practically harmless.

Mr. PARSONS:—Mr. Cameron has told us one thing which is indeed serious, and that is that if we go on as we are doing now, it is quite possible our coffee may become altogether sterile.

Mr. CAMERON:—Yes, if you are going on as you do now. We have in India about 165 varieties of rice planted in different parts of the country, which would indicate that the natives have found out the benefit of introducing new varieties.

Mr. HARRIS:—How about coffee? We never go in for rotation of crops; but we do go on feeding the soil.

Mr. CAMERON:—That is what I say. Going on that principle, a time will come when the soil will get exhausted and you will gradually get less crop. It is not only the soil we have to consider, but the water and atmosphere generally. You have also certain factors which you can never change.

Mr. SPROTT:—I should like to ask Mr. Cameron if he ever noticed some jungle trees affected by fungus very sir to *Hemelia vastatrix*.

Mr. CAMERON:—I can't say that I have ever gone into fully.

Mr. GRAHAM ANDERSON:—I think I can give you some i mation about that. I daresay you mean the form of leaf-dis that attacks the Bungar Sedlay tree. I sent it home in 18 Professor Cook when I was sending the first specimens of disease and other fungoid parasites. His remarks on the su appear in his original work on leaf-disease. If you exa the fungus of Bungar Sedlay under a microscope, you wil that it appears exactly like a volcano containing bright ye dust, whereas *Hemeleia vastatrix* appears like a bundle of croc but to the eye they appear the same. We have fungoid gro on all jungle trees, at some stage or other resemble *H leia vastatrix*, but when they finally develop are entire different parasite. I should like here to give it as my opi that little if any deterioration has set in with regar our coffee. We have coffee in Mysore on some of the old es opened as much as 50 years ago, which is as healthy and ductive now as ever. In addition to this, I believe al original Babubuden temple trees, which are about 150 years' are still to the front. Far from being anxious about the ma there is nothing in the world that I can think of which is hopeful than coffee. There has not been a single horticul arrangement applied to it, and yet we can regard it entire confidence. We should be happy that it is an indu that involves a certain amount of trouble. Otherwise it w be taken out of our hands altogether. (Cheers.)

This brought the discussion in Committee to a close, w general meeting was resumed.

(IN OPEN MEETING.)

Mr. CAMERON made the following remarks:—

MR. CHAIRMAN AND GENTLEMEN,—Before concluding remarks to-day, I should like to thank you for having give this opportunity of meeting you and hearing your views, w were most interesting. When I was here last year we s chiefly on the fertilisation of coffee plants, and I do not know any of us have done very much since then but speak on subject. I don't know at least if any one has acted. In industrial organ, *Planting Opinion*, I published a short artic the fertilisation of the coffee flower, from which you will be to see how crossing is done. Probably some of you have not the article. It was written over the initials "J. C.," as I not sign my name in full. Well, if you read that over a you will see how the process of fertilisation is effected. It very simple one; there is nothing difficult about it. The thing is that we have to wait for some time before we ca any results. I hope all of you, or at least some of you, will g for this and try to assist myself and others to carry out s improvement in the production of new strains of coffee. I quite positive that in this way you will hereafter achieve won ful results. In improving the strains of plants, we are follo very much the same principles as we do when we tr improve breeds of cattle or races of men. The principles entirely the same, only that plants are far more easily impr than cattle or men. But you must be persevering and patience to go on with your experiments quietly and limited scale on your estates till such time as you find you gained something definite, something worth achieving. Th addition to the work of hybridisation you could do a good by selecting the seed. That is a time-honoured practic home, not only by seedsmen and nurserymen, but also farmers and agriculturists of all sorts. In selecting seed will find the farmer is very particular only to have the heav finest and best. And it should be the same with the pla

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Do. do. do. 2½ „ „ „	...	15	0	0
Pick Axes, 6½ lbs. (well steeled) ... ... „	...	16	8	0
Bill Hooks, (Barcutties) 12″ blade, bright steel „	...	18	0	0
Do. Kentish, with back, steel, 2¼ lbs. wt. „	...	16	0	0
Bushel Measures (Galvanized), Imperial Stnd. ...each	...	15	0	0
Buckets (Galvanized), various sizes ... from per doz.	...	16	8	0
Watering Cans, (Galvanized) "Nonsuch," 2 gals. each	...	4	0	0
Do. do. do. 2½ „	...	4	8	0
Steel Digging Forks. *Steel strapped all along handle.*				
4 & 3 pronged per doz.	Rs. 39-0-0 &	33	0	0
Grass Knives, socket handle, steel ... per doz.	...	12	12	0
Hammers, 6, 7, & 8 lbs. ... ... per lb.	...	0	6	0
Handles, Pickaxe, 3 ft. long (English Ash) ... each	...	0	12	0
Do. 30″ long 3¾″ circ. (do)	... „	0	6	0
Do. 16″ „ 3″ „ (do)	... „	0	4	0
Do. Digging Fork ... ... „	...	0	14	0
Lining Ropes, abt. 250 feet ... ... „	...	8	12	0
Mamooties, Steel 10″x 8″ or 9″x 7″ abt. 4 lbs. wt. per doz.	...	12	12	0
Do. Iron 10½ x 8½ or 9½ x 8 abt. 4 lbs. wt. „	...	7	8	0
Quintanies, Steel 15″ × 6,″ 5½ lbs. weight ... „	...	18	0	0
Do. 9½″ x 5,″ 3¼ „ „ ... „	...	14	4	0
Manure Pans, (Galvd.) 7″ deep x 18″ top x 10″ bottom „	...	23	4	0
Pitting Bars (Alavangoes), well-steeled points, 3″ spade end, 45″ long, 9 lbs. wt. „	...	16	8	0
Pruning Knives, English make, best steel, 4″ blade „	...	9	0	0
Do. Saws, do. do. 14″ „	...	18	0	0
Seamless Bags (for coffee transport to coast) 42″ x 20″ „	...	9	12	0
Shovels, round nose, T handle ... ... „	...	12	12	0
Tea Transplanting Spades, steel, sharp edge ... each	...	2	8	0
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Do. do. bottoms do. „	...	3	8	0
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Full Chests 24 x 19 x 19 (outside) ½ in. planks each	...	1	1	0
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Any other dimensions at proportionate prices.				
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127 sheets 37″ x 22″ ... ... per case of 2 cwt.		32	0	0
or 218 „ 25″ x 19″ ... ... „	...	32	0	0
„ { 40 „ 84″ x 22″ for sides / 80 „ 21″ x 16″ „ tops and bottoms }	... „	30	0	0
„ { 72 „ 65″ x 19″ „ sides / 144 „ 14″ x 14″ „ tops and bottoms }	... „	30	0	0
older (Sticks) per case of 1 cwt. Rs. 50, or per lb.	...	0	8	0
oldering Fluid ... ... per bottle	...	2	0	0
oop Steel ½″ (abt. 3,000 feet to the cwt.)... per cwt.	...	15	0	0

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Copper Punched Cylinder cover 4′ x 2′ ... each	...	25	0	0
Do. Disc cover ... ... „	...	9	0	0
Do. do. for Liberian ... „	...	12	8	0
COIR MATTING—In rolls of 60 feet long x 3 feet wide.				
Estate, Double, (coffee drying, etc.) Nos. 1 and 2, Rs. 2-8 &		2	4	0
Ordinary Bungalow Twill		7	0	0
Fine Machine-made Yarn		12	8	0
Superior Yarn		15	0	0
Coloured stripes to order. Samples sent on application.				
IRON—GALVANIZED.				
Continuous Iron. For roofing, etc.				
In rolls of 100 ft. x 2 ft. 28 G. (per ft., 7 as.) per roll ...				
Corrugated Iron sheets 24 G. 2 ft. wide (English)				
Lengths 5, 6, 7, 8, 9, 10 ft. / Approx. weight 14, 16, 19, 22, 24, 27 lbs. per cwt....		10	0	0
Iron Ridging, 6 ft. x 6 inch lap. ... per length	...	1	8	0
Bolts and Nuts, ¼″ x ¾″ ... ... per gross	...	1	14	0
Rivets (*abt. 64 to the lb.*) ... ... per lb.	...	0	4	6
Washers, Iron (*abt. 70 to the lb.*) ... ... „	...	0	4	6
Do. Lead (*abt. 50 to the lb.*) ... ... „	...	0	6	0
Screws 2½ in. (*abt. 28 to the lb.*) ... ... „	...	0	7	0
Lead headed nails 2½ in. (*abt. 20 to the lb.*) „	...	0	6	0
NAILS—				
Cut Rose Nails 1 in. (*abt. 500 to the lb.*) ... per lb.	...	0	3	0
Do. 2½ in. („ 90 „) ... „	...	0	2	3

Wire Nails, French.

	1″	1½″	2″	2½″	3″	4″
℔ 1 cwt. keg Rs.	13/12	11/8	11/	10/8	10/	9/8
℔ pound annas	2¾	2½	2¼	2¼	2	1¾
Nails ℔ lb. (*abt.*)	400	200	160	100	80	35

Triangular Barbed Wire Nails.

	1″	1½″	2″	2½″	3″	4″
℔ 1 cwt. keg Rs.	14/	12/	11/	10/8	10/	9/8
℔ pound annas	2¾	2½	2¼	2¼	2	1¾
Nails ℔ lb. (*abt.*)	500	290	160	110	75	40

ASPHALTE ... ... per ton	...	69	0	0
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"Whites" Best ℔ barrel of abt. 375 lbs. net	...	11	12	0
Sole Agents for S. Canara, Coorg, Malabar, Coimbatore, Travancore.				
COAL TAR, Best ℔ barrel of abt. 4 cwts. gross	...	20	0	0
WINDOW GLASS—per case of 100 sq. ft. (all sound)	...	15	0	0

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in this country. He should not be satisfied with mixed seed; but should make sure that he has the heaviest, largest and finest in every respect. He should exchange his seed by sending it to other parts of the country to friends and asking them to send him back their specimens of seed equally carefully selected. He should also try and introduce seed from other countries, such as West Africa, Brazil, Jamaica and all places where coffee is largely grown. I don't know that I can add anything to these remarks; but as you seem very keen on fertilisation and seed selection, I think it right to tell you that by means of these two methods a man can do a great deal. Of course, high cultivation you thoroughly understand, and it is needless for me to say much about it. I believe, however, that you are going to bring up a proposal concerning the appointment of an Agricultural Chemist. In this connection will you allow me to say that there are chemists and chemists. (Hear, hear.) If you are going in for the services of a chemist, I strongly advise you to get the very best man available. You will have to pay a heavy sala such a man, but do that ungrudgingly, and your money returned to you twenty-fold. It is no use going to a chea who will make you believe this, that, and the other thi eventually you find nothing good. I strongly advise you the best man possible, and if the Mysore Government other Goverment can help you in the matter, take their h be thankful. I don't think I have anything more to add that I am much obliged to you for giving me a h (Cheers.)

The CHAIRMAN:—I beg to move a hearty vote of tha Mr. Cameron. The discussion has been a most difficult report, but it has been one full of interest to all presen have heard it, an interest entirely due to Mr. Cameron. I thank him for his courtesy in accepting our invitation.

Mr. GRAHAM ANDERSON:—I have the honour cordia second the resolution moved by the Chairman. We

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ply indebted to Mr. Cameron for the kindly, courteous and nstaking manner in which he has explained matters to us.

Mr. CAMERON then left, and the discussion was resumed.

After various remarks (reported in our issue of 13th ult.) meeting again went into committee.

(IN COMMITTEE.)

Mr. E. G. WINDLE (Nilgiris):—It may seem ungracious to a word against any proposal brought forward for improving knowledge, but I hardly think Mr. Parsons' proposal is in ordance with the resolution passed last year. I do think that Mr. Cameron's services are given to one district in particular, t district should pay the necessary expenses. On behalf of the giris Association I should not have thought of asking for the 1,000 mentioned. It would have been met by our Association, n though the results of his work were published for the neral good. The published results are not the same thing as actual experiments conducted under your own eye. I do mean to grudge the superior knowledge to be thus obtained Coorg; but I do think that under the circumstanees it is only sonable that the expenses should be borne by them. I would, refore, move as an amendment that the expenses connected h this proposal be borne by the Coorg Association.

Mr. H. G. PARSONS:—One of the first questions I would ask in nection with Mr. Windle's amendment is, what is the object he Reserve Fund? We might have obtained Mr. Cameron's vices without subscribing a penny to the Reserve Fund. We nt Mr. Cameron to come up and see what we have done and ort on it.

Mr. J. W. HOCKIN:—I do not think Mr. Windle has any grounds objecting to Mr. Parsons' proposal. The money was voted last ar, and Coorg is the only Association that has taken the matter and arranged to have experiments carried out systematically der Mr. Cameron's supervision. As it is the only district in this sition, I think it may fairly claim the grant, and we shall all efit by the experiments made in Coorg, if, as I understand is case, the results will be reported to the U.P.A.S.I. If another trict had taken the same trouble as Coorg in the matter, I see it would have a right to claim its share of the grant and . Cameron's services, but as things are, I do not understand v other districts can object to Coorg taking advantage of last r's grant.

Mr. H. M. KNIGHT:—I should oppose the granting of the 1,000, not because I do not want to see Coorg get the benefit it, but because I do not want to see this sum taken out of the serve Fund.

Mr. J. W. HOCKIN:—But it has been taken out of the Reserve nd. We have already passed a resolution to that effect t year.

Mr. R. GOMPERTZ:—Perhaps a method of getting over the ficulty would be if the plants raised were ratably distributed ongst the subscribing Associations.

Mr. GRAHAM ANDERSON:—I think it would be the greatest y in the world if there was any difficulty about sanction- this matter. We personally in Mysore are under the atest obligations to Coorg for having helped us to introduce fee plants and for having done so much for the province. I nture to think that Coorg offers special facilities for an periment the nature of which we have been discussing. They ve an immense amount of coffee centrally situated, and it uld be a great pity if we raised any objections to the payment this little sum out of the funds of this Association, because elieve that once we subscribe, the subscription is for the com- n good. What takes place in Coong will, I am convinced, be the common good. (Cheers.)

Mr. W. H. SPROTT:—I think that in one way we are specially uated. We have a better chance of getting the services of . Cameron than any other district except Mysore.

Mr. E. G. WINDLE:—I beg to withdraw my amendment.

Mr. H. G. PARSONS, in deference to what had transpired in the above discussion, amended his resolution as follows:—

"That the resolutions passed last year for obtaining Mr. Cameron's services be put into force and that, if permitted, he be deputed to visit Coorg, the results of his investigations to be reported to the U.P.A., provided his expenses do not exceed Rs.500."

The resolution was carried in Committee, and seconded by Mr. J. W. HOCKIN was affirmed in general meeting.

DISTRICT ASSOCIATIONS.

COORG.

Proceedings of a General Meeting of the Coorg Planters' Association held on 27th July, 1898, at the Bamboo Club, Pollibetta.

PRESENT: Messrs. E. M. Breithaupt, Jas. Chisholm, W. Davies, D. A. Donaldson, H. G. Grant, J. S. Gerrard, R. Hamilton, James Hume, A. H. Jackson, Kaundeniya, A. Lambert, F. Macrae, H. M. Mann, H. Robinson, J. Rose, H.T. Shaw, H.G. Parsons, *Honorary Secretary*, and Mr. James Chisholm, *in the Chair*.

Ballot papers for President for 1898-99, were opened, when Mr. W. H. Sprott was found to have been elected by a large majority in place of Mr. Jas. Chisholm, who regretted he was unable to accept office, and explained to the meeting at some length the different reasons and obstacles there were to his becoming President, at the same time he warmly thanked the Members for the honour of having elected him in the first instance.

The Honorary Secretary expressed his regret that the circulars sent out should have been found to be understamped, however, the question was before the Post Office authorities, as he did not admit that the mistake was on their side.

The following gentlemen were unanimously elected Members of the Association:—Messrs. T. W. L. Hext, Jas. Hume, L. C. Bearne, W. H. Wilkinson and A. J. Wright.

Currency Question.—Circulars and letters from Secy., U.P.A.S.I., were read, and after much discussion, it was resolved on the proposition of the Chairman, seconded by Mr. Davies, "that the rupee, if fixed at a rate that would not interfere materially with the Agricultural and producers' interest, would be the most suitable policy for us to support."

The delegates to the U.P.A.S.I. Meeting in August, would be instructed to represent the views of the Association on the above, leaving it to experts to discover the best means of securing a stable currency.

Delegates to U.P.A.S.I.—Resolved that the President and Honorary Secretary do attend, accompanied by Mr. A. Lambert from South Coorg, and Mr. Murray Aynsley from North Coorg.

Coolie Shelters.—Resolved that the Honorary Secretary do write to Government asking for an account of expenditure on coolie shelters, for the information of those who had subscribed.

Pollibetta Hospital.—The Honorary Secretary having read the correspondence it was resolved that the Commissioner of Coorg be asked if in the event of Rs.4,000 being subscribed, Government will make up the estimated balance, at the same time intimating that maintenance charges could not be guaranteed. All present, with hardly an exception, agreed to support and subscribe to the hospital.

Revenue Demand.—Resolved that the Commissioner of Coorg be asked to change the date for payment of land Assessment on Coffee to 1st August of each year, instead of as at present.

Railway.—The Honorary Secretary read letters from the Malabar Chamber of Commerce, Consulting Engineer for Railways, Madras, and others. It was resolved "that this Association do unanimously support the Railway Policy of Madras Government as indicated in G.O., No. 852, Railway, dated 23rd June, 1898."

The Honorary Secretary informed the Meeting that he proposed to bring up the subject at the U.P.A.S.I. Meeting in August.

Improvement of Coffee.—Resolved that this Association do apply for Mr. Cameron's services for a tour in Coorg as settled by the U.P.A.S.I. in August, 1897, and that the delegatee be instructed to arrange accordingly.

Land Record Cess.—Resolved that the Honorary Secretary do ask the Commissioner of Coorg if Government will inform this Association as to the income and expenditure of this department.

With a vote of thanks to the Chair the meeting ended.

H. G. PARSONS,
Honorary Secretary.

SHEVAROYS.

Proceedings of the Monthly Committee Meeting of the Shevaroy Planters' Association held in the Victoria Rooms, Yercaud, on Monday the 5th September, 1898, at 1 P.M.

PRESENT: Messrs. C. Dickins, C. Rahm, Rev. J. M. Kempf, C. G. Lechler, *Chairman*, J. C. Large, T. H. Short, R. Gompertz, *Honorary Secretary*.

1. Notice calling the meeting was taken as read.
2. Copy of Plague Notice and of Collector's No. 43 of 30th ultimo (Plague) to the Deputy Tahsildar of Yercaud was read, and it was resolved with reference thereto that, in the opinion of this Meeting, it is the duty of all Planters to give the Government officials every assistance in their power in the present emergency.
3. *Resolved* that the *Central African Times* (newspaper) be stopped.
4. *Resolved* that Mr. Thurston Short be requested to go through the book of proceedings, noting any alterations or additions that have been made in the rules since the Association was started and submit them to the Committee with a view of framing a new code of rules embodying as far as may be the above alterations.

ROBERT GOMPERTZ,
Honorary Secretary, S.P.A.

HEALTH AND HARD MUSCLES.

IF John Simpson were not a blacksmith we might not have occasion to allude to him at the very outset of this writing. But he *is* a blacksmith and will thus serve an important purpose; that, too, without having to put on his leather apron to do it.

And he will do it by standing in front of his forge for five minutes while we all take a look at him. He is a strong and robust man, as Mr. Dickens's Joe Gargery was—as all blacksmiths ought to be. Ought to be, I say. But *are* they?—as a matter of fact? No, they are not—not by many a length of nail rod.

Now it is somehow a common notion that all men who work hard, especially amid rough surroundings and in the fresh air, are apt to be vigorous, healthy fellows; they are supposed to joke at doctors, to have no use for apothecaries, and even to regard undertakers as the necessity of a distant future. Is this view a true view? Are health and hard muscles always found together? Take your time to think. Meanwhile we will hear what Mr. Simpson himself says:—

"Up to the spring of 1885," he writes in a letter dated May 5th, 1893, "I was strong as most men—perhaps stronger than most. Then I began to suffer from illness. My victuals and I had a falling out. After every meal I had great pain and fulness of the chest. Then I got into such a condition that I had these feelings nearly all the while. I tried to avoid them by eating nothing but light food, but the result was just the same. I think a morsel of bread would have hurt me almost as much as a round of beef. Then I began to lose weight, and had all I could do to keep up with my work. The doctor gave me medicine, but I got no help from it.

"I was wondering how this would end when I heard of Mother Seigel's Curative Syrup and bought a bottle of it from Mr. James Crossley, the grocer at Mile Walk. The effect was speedy. It appeared to go straight to the right spot, and it wasn't long before I was able to eat without any pain to follow. Then my strength and flesh gradually came back, and ever since I have done my work as easily as I did before the disease, whatever it was, overtook me. (Signed) John Simpson, Cliviger, near Burnley."

Now, about that health and hard muscle question that I put to the reader; what's the answer? Why, of course, the answer is what any intelligent man would make who thinks with his eyes open. No; health and hard muscles are not always found together. But let us look sharp and commit no errors. The facts run this way: While a man cannot grow strong without a certain degree of health, it is also true that a notable amount of muscular power is consistent with both organic and functional trouble of the stomach, liver, kidneys, or heart. A man may be able to lift 500 pounds, and drop dead within a minute after he does it.

Sailors, farmers, miners, drivers of trams, 'busses, &c., outdoor labourers of different sorts (especially after reaching mid life) nearly all fall victims to rheumatism, nervous debility, or dyspe Yes, and do hard work for years just the same.

I said "*or*" dyspepsia. Leave out the "or" and say dyspep dyspepsia only—and you have struck bottom. This produce the other maladies; they are merely results and symptoms There's no keeping clear of it by running off to sea, working farm, or diving down into a mine. No matter where you go or you do, indoors or out, clerking in the Bank of England, or dri the locomotive of the Scotch Express—*dyspepsia* will get hold of y you give it a chance. And most men do *that* as if they we eager to be ill as they are to be rich. Which reminds me t you in a subsequent article how to avoid dyspepsia. For time I can only speak of how to cure it. Imitate John Simp example. Do what he did. And remember that stalwart me unconscious) often stand nearer a bed of pain, nearer death, tha the feeble women whom they pity.

MARKET REPORT.

COFFEE.

Messrs. R. J. Rouse & Co's Weekly Coffee Report (*August 26th*, 1898) sa Good prices were obtained for the moderate supplies brought forwa Public Sale this week and sellers were able to dispose of nearly a coffee catalogued.

Only about 150 bags East India were offered and these realise prices for good bold greyish descriptions.

The Central American kinds met a good demand at fully previous for colory grades whilst common sorts sold steadily.

A further advance occurred in Futures this week. On the cont deficiency in Brazil receipts as compared with last year and quotatio one time showed a rise of 2/3 on the week, but the market closes 6 the best.

Messrs. Wm. Jas. and Hy. Thompson's Report of the Colonial Marke the Fortnight ending August 24th, 1898, says:—Bank rate 2½%. Bo Exchange closes at 1s 3 7/32d. Brazil Exchange 7 11/32d. Rupee paper 62¾. Silver 27 13/16d per oz.

The moderate supply offered during the past week has again steady demand, and prices generally are slightly dearer. The proportion of desirable colory sold with good competition at very prices. Brazil markets quiet but steady.

Daily receipts averaged 13,100 bags in Rio, and 29,100 bags in San Futures have been firm, and at the close the market is very st with buyers at an advance of about 2s. per cwt., viz.:—Good av Santos in Havre, September delivery, fcs. 39.25, in Hamburg pf. 32½ No. 7 low ordinary Rio in New York $5.70.

To-day's London official quotations are:—

	Sept.	Oct.	Dec.	Mar., '99.	May.	July.
SANTOS ...	31/6	32/-	32/6	33/3	33/9	34/-

We quote:—

Ceylon, mid. to good mid.	101/	@108/	
Do. small to low mid.	79/	„ 99/	
East India, mid. to good mid...	70/	„ 92/	
Do. small to low mid.	58/	„ 72/	
Guatemala, mid. to fine...	66/	„ 98/	
Do. good ord. to low mid...	50/	„ 64/	
Salvador, good ord. foxy greenish...	38/	„ 42/	
Costa Rica, mid. to fine...	69/	@	
Do. ord. to low middling.	37/		
Jamaica, good to fine ord.	32/		
Do. greenish to fine colory...	65/		
African ...	26/		
Columbian, ordinary ...	36/		
Do. good ord. to low mid...	42/		
Do. mid. to fine...	64/		

Receipts in Brazil to 24th August compare as follows with pre years:—

	1898-99. Bags.	1897-98. Bags.	1896-97 Bags.
RIO	519,000	839,000	612,000
SANTOS	1,055,000	1,380,000	965,000
	1,574,000	2,219,000	1,577,000

Auctions—

2 casks 5 barrels Plantation Ceylon ...	...	90/	@
22 casks & tierces 4 barrels Liberian Ceylon ...	...	20/	„
1,594 bags Costa Rica, chiefly sold ...	...	31/	„
1,564 bags Guatemala, part London cleaned, chiefly sold	...	27/	„

955 bags Salvador, chiefly sold ... ... 37/ @ 51/
,034 bags Mexican chiefly sold ... ... 28/6 „ 63/6
,556 bags Columbian, part London cleaned, chiefly sold ... 39/ „ 93/
460 bags Nicaragua ... ... 38/6 „ 54/
30 bags St. Domingo bought in.
25 bags Bolivian, London cleaned, damaged ... ... 43/ „ —
20 packages Mocha bought in.
77 barrels 62 bags Jamaica, partly sold ... ... 42/6 „ —

Landed last week ... 705 *tons. Deliveries* ... 512 *tons. Stock*...20,306 *tons.*
Do. last year ... 264 „ „ ... 725 „ „ ...12,635 „

We take the following from London advices of 26th ult.—The market has again been only moderately supplied, and with a steady demand the bulk has been sold. Ceylon Plantation realised again very satisfactory prices, and the limited quantity of East India found buyers at a distinct advance. Mocha and Jamaica very difficult of sale. Foreign growths of desirable quality have brought fully valuations and occasionally rather more, but the middling and common lots were dull. "Futures" have been strong and advancing, but the closing prices shew a slight reduction from the recent highest; the shortage of receipts, and the reduced estimate for the Brazil crop caused by frost, have been the factors engineering the rise; latest rates are :—

London	...Santos	...December delivery	...	32s. 6d.
New York	...No. 7 Rio	... „ „	...	6.00 cents.
Hamburg	...Santos	... „ „	...	33 pf.
Havre	...Santos	... „ „	...	40 francs.
Holland	...Good ordinary Java	...	...	37¼ cents.

Imports Deliveries and Stock of Coffee in London are as follows :—

		Stock.		Imports.	
		1898.	1897.	1898.	1897.
West India	... tons	286	413	1,571	791
Ceylon	... „	144	137	258	363
East India	... „	2,248	2,249	5,517	5,035
Mocha	... „	539	438	615	485
Brazil	... „	3,301	2,064	2,503	1,426
Other Foreign	... „	12,947	7,194	25,486	19,541
Total	... „	19,465	12,495	35,950	27,641

		Home Consumption.		Export.	
		1898.	1897.	1898.	1897.
West India	... tons	254	234	1,137	500
Ceylon	... „	101	113	123	235
East India	... „	1,752	1,572	2,623	2,000
Mocha	... „	466	348	109	157
Brazil	... „	659	806	1,514	1,791
Other Foreign	... „	6,134	6,277	11,069	9,162
Total	... „	9,366	9,350	16,575	13,845

The preceding figures exhibit—
In the imports an increase this year of 8,309 tons.
Home Consumption an increase of 16 „
Export an increase of ... 2,730 „
Stock an increase of ... 6,970 „

Auctions this week have gone off as under :—

CEYLON.—*Plantation.*—31 casks 7 tierces 12 barrels 2 bags sold, triage 41s to 48s, smalls 67s to 91s, low middling gray 89s 6d to 96s, medium 104s 6d to 107s, bold 108s to 114s, pea-berry 100s to 110s.

CEYLON, *Liberian.*—10 casks 2 tierces 4 barrels sold, smalls 20s to 25s 6d, dull medium 28s 6d, good bold yellow 35s, pea-berry 35s 6d.

EAST INDIA.—24 cases 118 bags sold as follows: *Neilgherry*, triage 37s, smalls 45s 6d, faded medium 55s 6d, boldish 67s 6d. *Travancore*, triage 37s to 45s 6d, smalls 53s 6d to 54s, low middling dull 69s to 70s, bold 84s, good bold 93s 6d, pea-berry 77s to 80s 6d.

EAST INDIA, *Liberian.*—19 bags sold, bold brownish 25s, bold yellow 32s.

MOCHA.—20 half-bales bought in.

COSTA RICA.—1,756 bags mostly sold, ordinary palish small 33s to 39s 6d, good ordinary pale and palish 40s to 47s, fine ordinary 49s to 50s 6d, fine fine ordinary greenish 54s, low middling 62s to 65s, good middling 76s, pea-berry 44s to 69s.

GUATEMALA.—Of 1,363 bags offered about 950 bags sold, ordinary dull pale 37s 6d to 38s 6d, good ordinary palish 46s, low middling gray 57s, middling 67s 6d, good middling 75s 6d, good colory 87s to 87s 6d, fine colory bold 101s 6d to 102s, pea-berry 78s to 88s; London-cleaned, mixed small 32s to 50s, damaged medium 51s, low middling to middling greenish colory 64s to 72s, bold 84s, pea-berry 80s 6d.

COLUMBIAN.—1,141 bags mostly sold—small pale 33s 6d to 39s, fine fine ordinary 55s 6d to 56s, low middling greenish 59s 6d to 61s 6d, bold pale 62s; London-cleaned, mixed to fair smalls 26s to 45s, damaged soft mixed black and red 40s to 52s, low middling soft mixed 57s to 64s 6d, middling to good colory 66s to 80s 6d, good bold 83s to 93s, pea-berry 68s to 78s.

BOLIVIAN.—25 bags damaged London-cleaned sold at 43s.

BRAZIL.—170 bags Rio bought in.

Havre, August 25.—Market fluctuating. Santos good average September opened at 39¾f and closed at 39½f, December opened at 40¼f and closed at 40f.

Hamburg, August 25.—Good average Santos September opened at 33⅝m. and closed at 33½m.

New York, August 24.—Closing prices of No. 7 Rio were as follow :—

	Aug.	Sept.	Oct.	Nov.	Dec.
Aug. 24 ...	5.70	5.70	5.80	5.85	6.00
Aug. 23 ...	5.65	5.65	5.70	5.75	5.90

TEA.

CHINA.—A dull tone has fallen on the market, and transactions of importance are very few. Prices, however, have not materially altered from those lately ruling.

At auctions during the week 4,887 packages have been offered and a small proportion sold as follows :—
half-chests new season's Black leaf Congou, common Moning 4½d.
ditto new Red leaf Congou, Soomoo, 4⅝d, Panyong 5⅜d.
boxes Pakling Congou 5⅞d.
ditto new season's new make Congou 4⅝d to 6d.
half-chests Souchong 5½d.
boxes Canton Scented Orange Pekoe 4¾d to 9d.
ditto Scented Orange Pekoe 8d to 10½d.
half chests and cases Moyune Green: Gunpowder, medium to good medum 6½d to 8¾d, good to fine 9½d to 1s 0½d, finest 1s 4d; Imperial, fair 5d, good 8d; Young Hyson, fair 5½d, medium 6d to 8¼d, good to fine Sow Mee 10½d to 1s 0½d; Hyson common 3⅛d, fair 4⅝d, good and fine Foong Mee 9¾d to 11¼d.
ditto ditto new season's Gunpowder 7¼d, Imperial 5¼d, Hyson 5¾d to 6½d.
boxes Ping Suey Gunpowder 4¼d to 5⅞d.

INDIAN.—Sales comprised 34,300 packages against 33,900 packages last week and 29,400 packages at this time in 1897.

The market kept fairly steady for all except common and medium kinds with unattractive cup, which in most instances passed easier. Parcels with special point and character, particularly Broken Pekoes with "coloury" liquor, commanded good competition and full prices were occasionally paid for them, while choicest lots again brought high figures, notably :—Assams; Sook rating Estate, A.F.T.Co., F.O.P., 2s 6½d, B.O.P., 2s 5½d; Beesakopi Estate, D.D.T.Co., B.O.P., 2s 6½d, B.P., 2s 3½d; Budla Beta Estate, B.B.T.Co., B.O.P., 2s 3½d; Badulipar Estate, B.O.P., 2s 2¾d; Hokungoorie Estate. A.F.T.Co., B.O.P., 2s 2½d; Jamira Estate, J.(A.)T.Co., O.P., 2s 0½d; Samdang Estate, D.D.T.Co., B.O.P., 1s 11½d per lb. Darjeelings: Poobong Estate, B.O.P., 2s 8⅜d, P., 2s 1⅜d; Margaret's Hope Estate, B.P., 2s 5d, O.P., 2s 0½d; Castletan Estate, O.P., 2s 2¼d; Goomtee Estate, B.P., 2s 1⅜d; Moondakotee Estate, A.T.E.Co., B.O.P., 2s 0½d per lb.

Quality of many of the Assams and Darjeelings continues to be satisfactory. Dooars are about on a par with previous arrivals, while Cachars and Sylhets still seem to have been detrimentally affected by the drought. South India was represented by 2,200 packages including some useful invoices from Travancore.

For 25,100 packages on Garden Account 8⅜d per lb. was obtained, contrasted with 9¾d per lb. for 20,300 packages and 9½d per lb. for 24,700 packages in the two former seasons respectively.

CEYLON.—Auctions totalled 29,700 packages *versus* 29,100 packages on the 16th inst., and 27,400 packages a year since.

Buyers showed considerable eagerness to secure the most desirable lines. Common to fair leaf teas went very firmly at previous quotations to a fractional advance. Medium to fine Pekoes, which have been neglected of late, were more in request and in some cases recovered to the extent of ½d to 1d per lb. in value. Broken Pekoes with dark infusions or briskness met with strong support and although selling irregularly, decidedly better rates were given, often culminating in a rise of 1d per lb. when improved flavour was shown. Finest grades for the most part sold dearer.

The average is rather over 7⅜d per lb. On the 18th inst. it stood at about 7¾d per lb. and nearly 7⅜d per lb. in 1897.

JAVA.—No catalogues containing shipments of direct import were issued, but 1,635 packages, more or less affected by the fire at Hay's Wharf in June last, were disposed of "with all faults."

For next week 1,341 packages have been printed.

Deliveries.—The clearances of all Tea (on which duty has been paid) from the London warehouses, as per official returns, were :—
From 1st to 23rd Aug., 1898.....11,815,551lbs.
„ „ 1897.....11,739,171 „

During the week the following have been printed for sale by public auction :—

	Sold. Pkgs.	Withdrawn. Pkgs.	Total offered. Pkgs.
India	28,985	5,320	34,305
Ceylon	28,905	819	29,724
Java	—	—	—
Total	57,890	6,139	64,029

PEPPER.

Black.—The market has been dull since our last, and prices have declined. About 150 tons have changed hands, viz. :—

	per lb.
Singapore (basis fair) on the spot	$4\frac{13}{16}$d
do Aug.-Oct. shipment	$4\frac{31}{32}$d
do Sept.-Nov	5d

At public sale on the 24th inst. good supplies were offered, comprising 441 bags Singapore, 290 bags Penang, 414 bags Lampong, 240 bags Aleppy, 97 bags Wynaad, and 8 bags Malabar, but the whole, except the last-named, passed the hammer unsold, the Malabar realising $4\frac{1}{2}$d per lb. for small heavy.

White is also cheaper, with sales of 150 tons, viz. :—

	per lb.
Singapore (basis fair) on the spot	$8\frac{7}{16}$d
do Aug.-Oct. (s.)	$8\frac{5}{8}$d down to $8\frac{3}{8}$d
Penang (basis fair) on the spot	$7\frac{5}{8}$d
do Aug.-Oct. shipment	$7\frac{3}{4}$d
do Oct.-Dec.	$7\frac{3}{4}$d
do Sept.-Nov.	$7\frac{25}{32}$d
do Nov.-Jan.	$7\frac{13}{16}$d
do Dec.-Feb.	$7\frac{7}{8}$d

At auction on Wednesday, of 5 cases 54 bags Singapore offered 5 cases 35 bags sold—fine bright (cases) $10\frac{1}{2}$d, ditto (bags) $9\frac{1}{4}$d to $9\frac{1}{2}$d, good but mixed $8\frac{3}{4}$d. 296 bags Siam were bought in; also 189 bags Penang at $7\frac{5}{8}$d, and 116 bags Palembang at $7\frac{1}{2}$d per lb.

GINGER.

Cochin.—The improved demand noted in our last issue continued for some days and fully 2,000 bags of fair medium and small worked rough changed hands at from 24s to 25s, being a further advance of 2s to 3s per cwt. Under the hammer 143 cases 896 bags were offered and 36 cases 600 bags sold—medium and rather roughly cut and scraped 43s 6d, ditto mouldy 42s 6d; selected bold rough Calicut (in cases) slightly mouldy 44s, ordinary Calicut rough 24s 6d; medium and small some bold washed rough 25s to 26s, small, some shrivelled ditto 23s, small and shrivelled ends, part wormy, 19s 6d to 20s, shrivelled pickings 12s, cuttings, dusty to good, 14s to 15s 6d per cwt.

TEA IN AUSTRALIA.

Australian papers report as follows :—

SYDNEY, August 20th.—A healthy tone continues to pervade the market and buyers are still on the *qui vive* for teas for price, although the quantity of common tea available is small. The third shipment of Foochows, which will be to hand at the close of the week, is expected to bear better results than have been obtained from the earlier arrivals. The tone of the Ceylon market is also such as to lend increased confidence to importers. The Indian market, although noglected, must almost necessarily reflect the improved conditions in other departments.

MELBOURNE, August 23rd.—At the auction sales to-day 110 packages of new season's Indian and 660 packages of Ceylon were offered. The whole of the Indians were cleared at $6\frac{1}{2}$d to $7\frac{3}{4}$d, prices being on a par with valuations. Of the Ceylon 610 packages sold, bidding being very brisk for all common lines. Common pekoe and pekoe souchong brought $5\frac{1}{2}$d to $6\frac{1}{4}$d, fine pekoe to $10\frac{3}{4}$d and finest broken orange pekoe to 1s 4d. Privately, 120 chests of Ceylon sold from 7d. to 9d., 150 quarters of buds at 10d., and 100 half-chests of Panyong at $6\frac{1}{4}$d.

ADELAIDE, August 23rd.—Tea sales are comparatively unimporta both in Ceylon and China.

Messrs. Gow, Wilson and Stanton's Indian, Ceylon, and Java Tea Repo dated August 19th, 1898, says :—

QUANTITY BROUGHT TO AUCTION IN LONDON FROM 1ST JUNE TO DATE.

	Indian.	Ceylon.	Java.
1898-1899...	151,278 packages.	281,564 packages.	8,345 packag
1897-1898...	139,122 „	316,705 „	11,457 „

35,361 *pkgs.* INDIAN
29,703 „ CEYLON
296 „ JAVA
} Total 65,360 packages were offered in pub auction this week.

Progress continues to be made in the use of British Grown Tea markets outside the United Kingdom. Figures for the first six mont of the past three years are shown below, viz. :—

1898—24,427,654lb. 1897—22,823,423lb. 1896—17,098,272lb.

The main portion of the shipping trade in Indian Tea is transact during the latter half of the year; therefore the condition of the tra cannot be accurately judged by the small proportion exported during t first six months.

Export of Indian and Ceylon Tea to places outside the United Kingd from 1st January to 30th June.

INDIAN.

	1898.	1897.	1896
Re-exports from U. K. ...	3,348,944	2,730,948	1,680,8
Transhipments from U. K. *abt*...	744,719	2,100,000	1,250,0
Direct Exports from Calcutta ...	2,546,456	3,841,525	2,732,1
Total lb. ...	6,640,119	8,672,473	5,662,9

CEYLON.

	1898.	1897.	1896
Re-exports from U. K. ...	5,721,663	5,427,699	3,855,1
Transhipments from U. K. *abt*...	963,736	1,100,000	650,0
Direct Exports from Ceylon ...	11,102,136	7,623,251	6,930,1
Total lb. ...	17,787,535	14,150,950	11,435,3

Indian. The market stood the strain of this week's comparativ large auction fairly well; good liquoring kinds, arrivals of which are n somewhat more plentiful, sold steadily, but for poor Teas competit was less keen and prices somewhat irregular. Monday's auction 30,117 packages was divided between Monday and Wednesday. T official wire from Calcutta gives exports to U. K. for the first half of t month as 11,600,000lb. against 10,800,000lb., and from 1st April 15th August, 36,617,000lb. against 36,790,000lb. for same periods l year. The following averages are worthy of note :—"Amal. T Co., Kale 1/11¾; "Rungmook," 1/8¾; "Jungpannah," 1/8½; "Darjeeling Co." a "Suddia Road T Co.," 1/8; "Tukvar T Co.," 1/7¼.

Ceylon. Competition was good for all grades, prices being fairly fi An improvement in quality took place from many Estates, quotations consequence showing proportionately higher prices, varying from farthing per lb. on some of the lower grades to considerably more up any fine liquoring Pekoes and Broken Pekoes. Private telegraphic adv gives exports to U. K. for first half of month as 3,000,000lb. and estima the quantity for the month as 6,500,000lb. The following averages m be mentioned :—"Haputale Co. Kelliebedde" and "Holmwood," 1/0 "Associated T Co. Silver Kandy" and "S. T. & L. Co. Brookside," 1/-.

Average for the week is 7·63*d.*, against 7½*d.* last year.

Java. Only 296 packages were brought to auction and sold with go spirit at about previous rates. 108 packages Perbawattee averag 10¼d. per lb.

PUBLIC SALES OF SOUTH INDIAN TEA.

(AVERAGE FOR ALL INDIA 9·95*d.*) *August 19th.*

GARDEN.	Total.		Average.	Broken Org. Pek. or Flowery Pekoe.		Pekoe and Unassorted.		Broken Pekoe.		Pekoe Souchong.		Broken and Souchong.		Fannings, Dus and Various.	
	Quantity		Price.	Quantity	Price.	Quantity	Price.	Quantity	Price.	Quantity	Price.	Quantity	Price.	Quantity	Pric
Travancore ...	**615**	p	**6·01**												
Fairfield ...	129	p	5½	32½c	6	34	5½	29	6¼	24	5¼	5	5¼	5	3½
Glenmary ...	256		6¾	138	6¼8	56	5½5¾	...	...	...	...	...	...	62	6¾
Glenmore ...	126½	c	5½	...	...	123½c	5½5¾	...	...	...	...	1½c	5	2½c	2¾
Isfield T Co Isfield...	104		5	...	...	41	5¼	29	5¾	15	5	...	...	19	2¾

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1 *do do* ...	„ 20	„ 16	„ 12	„ 8 *do*

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PLANTING OPINION.

A WEEKLY JOURNAL

WRITTEN BY PLANTERS FOR PLANTERS.

L. III.] MADRAS, SATURDAY, SEPTEMBER 24, 1898. [No. 38.

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DOMESTIC OCCURRENCE.—The fee for inserting a domestic currence will be *One Rupee* for each insertion, payable in advance.

N. B.—Remittances should be sent to E. C. Duff & Co., Proprietors, Planting Opinion," 16/17, Armenian Street, Madras.

IMPORTANT NOTICE.

The Offices of this paper having now been removed to Madras, all remittances should be made payable to E. C. Duff & Co., Proprietors, *Planting Opinion*, 16 and 17, Armenian Street, Madras, who will also attend to all advertisements, &c.

Letters to the Editor should also be addressed to the Madras Office.

SEASON REPORTS.

TO OUR SEASON REPORTERS.

Please post your next reports to reach Madras on Friday, the 30th September, 1898.

Season Reports should be sent to the Printers, Messrs. Addison & Co., direct, and not to *Planting Opinion* Office.

Coorg.

Polli Betta, *22nd Sept.—Weather.*—Fine with passing clouds from 15th to 17th. ·05 inch next day, since when there has been rain every afternoon. Rather a smart shower measuring ·70 inch on the 19th. Yesterday the rain seemed to be unmistakably from N.-E., and measured about same, viz., ·70 inch. *Plant-diseases.*—Leaf-diseases bad only in patches. Rather worse Siddapur way. *Crops.*—Will be ready for picking on 15th proximo on places that got early blossom showers. *Interesting Items.*—Meeting of Officers and Non-commissioned Officers yesterday to arrange Autumn Rifle Meeting Programme.

GAINERS BY LOW EXCHANGE.

So much of our space has lately been devoted to statements concerning the Currency question and the Indian Currency Committee that we hesitate to refer to the subject of Exchange again so soon. But, from the planters' standpoint, it is of such vital interest that, perhaps, we shall be more easily forgiven for saying too much than for omitting to give the subject sufficient attention. It has been repeatedly remarked that the Currency question has been threshed out from every point of view. If this were true, a conclusion should be easily arrived at by the able and experienced financiers on the Currency Committee. But it is not the case. The Exchange problem is one of enormous intricacy, it is beset with complications, and these open up fresh complications, and so on—according to the *ad infinitum* principles that cause big fleas to have little fleas to bite them. For instance, we doubt if the questions of profit and loss, and loss and profit, caused by a rise or

a fall in exchange, have yet been thoroughly threshed out. True, the planter has asserted that, broadly speaking, the ryot and he are gainers by a low Exchange; but that is not enough, especially seeing that the planter does not appear to have considered whether there is any low limit, short of zero or "nothingness," beyond which a continued fall would cease to be beneficial, or would become positively harmful, to him. It may seem absurd to inquire from planters:—"If a shilling rupee would be more profitable to you than a one-shilling-and four-penny rupee, would a two-penny rupee be still more profitable?" Nevertheless, we put the question in all seriousness, for it is one that must be answered before Government can be expected to identify itself with a policy that would knock the bottom out of Exchange, and leave it to rest on Silver alone. It is a point that has scarcely received enough attention hitherto, for while it introduces the *argumentum ad absurdum*, it is by no means so absurd a question as it may at first sight appear. If, for example, a happy mean is to be *fixed* by Government action, what is that mean to be: what is the fairest level (or the least unfair) after all the various conflicting interests concerned have been involved? To arrive at even an idea of this, we must have the discussion of high or low Exchange held within limits. Par of Exchange may be regarded as a generally accepted maximum, above which not even a Home-charges-burdened Government wishes to go; but the minimum is by no means so easily ascertained, though perhaps 10*d*. is about the lowest level that has been mentioned in the course of a serious discussion of Exchange.

Then there is another point. Not very long ago, a young planter suggested that measures should be taken to try to bring about a reduction of the British Import Duty on Coffee. An older planter immediately pointed out that the present duty is a *protection* to Indian coffee, which, though of very superior quality, has only to pay the same duty per hundredweight as the very inferior Brazilian coffee and other lower sorts. Consequently, the *percentage* of duty on Indian coffee is less than that on Brazilian. Now, the Government of India has to consider a point of which this little incident has reminded us. It can scarcely be said to be a similar point, yet it is one of the first importance. It is to be found underlying the question, "Who would be the chief gainers by a low exchange?" Probably the answer that will most readily suggest itself to our readers is, "the ryot and the planter." But is that the correct answer? It is not easy to say, so long as certain statistics are not available; but at least we may suggest that the ryot who holds his land under the Government of Madras would be but a *temporary* gainer. He would in all probability obtain higher prices for his crops, because their silver value would most likely be enhanced; but in due course the time for re-assessment would come, and a Government with a depleted exchequer would squeeze additional kist out of him to the uttermost proportion of the increase in his income, if not far in excess thereof. Those who *would* gain permanently, however, would be the zemindars and others who reap the benefit of the permanent settlement, and under whom probably millions of ryots have to work. It would be very interesting if Government were to raise the veil that now covers this mysterious item, and explain exactly what area of land, and approximately what extent of crops and how many among the population of the country, are af by the permanent settlement. We imagine that the f would be a revelation to planters generally, and would that a reduction of Exchange really means a heavy addi bounty to landholders whose interests are protected the permanent settlement, and who have for years past practically receiving an enormous subsidy at the expe the State. In other words, the profit would not fall Government, nor yet to the population generally, of that Government is the representative. It would fa favoured and for the most part wealthy few; and the thus caused in Government budgets could only be m taxation that would fall almost entirely on others than few.

It has been estimated that a 1/4*d*. rupee represen effect a tax of, say, 40 per cent. on exports, whereas to the deficit that would arise if the rupee were put on level, nothing like a tax of 40 per cent. on Exports ha been suggested. Does the explanation of this lie par what has been mentioned above? At any rate, in c records of land-revenue receipts in various parts of we find that the average assessment of different e ranges from something like *one-tenth of a pie* to *rupee* per acre! How can the lower level still force unless the tenure under which the holder has hi renders him entirely free of the increased strain o Government Exchequer that results from low Excha The very low assessments of $\frac{1}{10}$ pie, $\frac{1}{3}$ pie and so on c have been raised by any re-assessment, and in all proba their present ridiculous lowness is partly due to the enh ment of values that has followed a heavy fall in Exch At least, the matter appears to us to need explan There may be some simple explanation of which we nothing, but our present idea is that in advocating lo change planters are urging the adoption of a cours would advance the interests of another class of holders very much more than it could be expect advance their own interests on growers of tea, coffe An export duty, too, would not touch these landho They appear to be a bounty-fed class, and the b increases as the rupee decreases in value. If this comprehensive statistics relating to the permanent s ment would certainly be interesting at the present So also would carefully-made calculations as to the pro effects of a rise or fall in Exchange on other items of re besides land revenue, and on expenditure. It is v assumed, for instance, that low Exchange means produce, increased exports and, therefore, improved ra traffic revenues. But how about the additional inter be paid on moneys borrowed for the construction o railways, and on materials, stores, etc.? It would possible to calculate the Dr. and Cr. items with any approach to accuracy, but a determined attempt on th of some Government official or department, with the sary figures at hand, would at least throw a little needed light on a dark side of the Currency problem suggesting this, we do not speculate as to whether the of a full inquiry would be to lead to a conclusion that 1*s*. 3*d*. or 1*s*. 6*d*., or any other figure, would be the generally acceptable and beneficial level for the rupee. merely point to what appears to us to need a good d investigation and elucidation before a right decision a happy medium rate of Exchange can be arrived at.

COFFEE HYBRIDS.

On another page we give some remarks of the *Madras il* on the subject of hybridisation, and in the U.P.A.S.I. tion it is recorded that Mr. Cameron is to proceed to org during the cold season in order to make certain estigations into the matter. *Apropos* of this, a correndent writes to point out that while a good deal of attenn is being directed to a hybrid between Liberian and abica, there is another cross that demands much more ention, viz., that between Maragogipe and Arabica. In opinion a cross between the latter two will meet with ch more favour "because of the superior flavour of the ragogipe, as it is well known that this variety gets much her prices in the London market than Liberian, Maragipe having fetched as much as £140 per ton in London." r friend adds that the nature of Maragogipe resembles Arabica more closely than the Liberian, and will there- assimilate with it more readily. He remarks that he enormous capsule and small bean of the Liberian fer too much from the Arabica, and a cross produces nething eccentric, whereas the result of the other combiion is a raising of the species." But, unfortunately, he s nothing of the probable disease-resisting properties the hybrid he advocates, and that is, after all, a more portant matter than improvement of flavour. Mr. meron, it will be observed, did not confine his suggesns to Liberian and Arabica: he distinctly advocated care- experiments with different varieties of Coffee, and we ve no doubt that Maragogipe will receive a fair share of attention of those planters who take up cross fertilisan and hybridisation energetically. Maragogipe is said be holding out rich promise on the Annamalais, where plants are said to be both vigorous and large. We uld be glad to receive information as to their condition Coorg, Assam, Travancore and Ceylon, in all of which ces they have, we believe, been tried. It would also be ll perhaps if careful inquiries were made regarding xican Coffee, as leaf-disease appears never to have acked it. Of course, it by no means follows that it would m a useful hybrid with Arabica grown in India; but a al might possibly lead to good results.

NOTES.

Bimetallist still! Mr. Balfour lately presented each of the Whips of the Unionist Party h a silver cigar case and a gold match-box.

a & Tea Companies. The following is on the authority of a retired Ceylon planter:—Talking about Tea Companies, I have been attending two mpany meetings, at which not one of the Directors sitting d visited Ceylon or knew anything at all about tea!"

n Paulo Coffee Estate Company. After debiting the London expenses and the interest on the Company's debentures, the net profit for the ar is £7,057, out of which an interim dividend on the prerred shares had been paid, leaving a balance of £3,057. nt of this sum £2,500 has been placed to reserve, and the mainder it is proposed to carry forward.

Export of China Tea. Up to 28th August, the export of black tea for Russia direct from China was about 2½ million lb. in advance of the same period last year. To America the export of black tea is about the same, but of green tea less than half for same period last year. To Great Britain, a million lb. less black and 300,000 lb. more green tea.

Tea-making in Japan. It is stated that a Japanese has invented a tea-making machine "which takes the newly-plucked leaf and performs all the necessary operations preliminary to packing, rolling, wasting and polishing." According to the *Japan* Mail, with one man and a boy this machine will manufacture 1,666 lb. of tea in 24 hours.

The weighing of Teas in London. The Secretary of the Ceylon Planters' Association lately sent to the local Press the letter, with inclosure, republished on another page. We need scarcely impress upon Tea planters in South India the desirability of studying the London regulations carefully. The letter of the Metropolitan Bonded Warehouses, Ltd., shows how necessary this is.

The Development of North Borneo. In the opinion of Mr. R.B. Martin, M.P., there is a good opening in British North Borneo for the employment of capital for the cultivation of sugar, tobacco, hemp, coffee and tea among other articles. Enquiries are already being made for land on which to grow tea in Borneo, so it is possible that "Ballyhooly" may soon see the land yielding the fragrant herb in abundance.

Coffee in the Seychelles. Mr. Waddell, who is engaged on the construction of roads in the Seychelle Islands, states that considerable success has attended the exports made to grow coffee there. The Arabica species, which was first tried, did not do well, but the Liberian gives fair promise. Planters should have an eye on the Seychelles, with a view to obtaining seeds or plants thence for hybridisation purposes.

Tea Samples Duty Free in the States. The U. S. Treasury has decided "that where tea is put up in packages of not over one ounce in weight, and the fact is established that they are samples for distribution or for use in soliciting orders, and not for sale, duty thereon will not be imposed under the Act of 1898, or examination made under the Act of 1897. Tea imported in packages of over one ounce in weight will be treated as merchandise, and subjected to examination and payment of duty."

Coffee in Pahang. The Report on the State of Pahang for June and July, 1898, issued from the British Residency at Pahang on 31st July, 1898, states that the aspect which the district presents is one of ever-increasing prosperity and activity, in very marked contrast to its condition a very few years ago. Land is being eagerly taken up all along the length of the Trunk Road, and the coffee and other plantations look exceedingly prosperous. There is a considerable permanent settlement of foreign Malays, and the price of land is still rising.

The Paris Exhibition. Ceylon tea-planters are making energetic preparations for the Paris Exhibition of 1900. It is under contemplation to have a buffet attractively set out, where visitors could lounge comfortably, and where good Ceylon tea will be dispensed. Of course, it is remarked, little sample packets of Ceylon tea will also be distributed, but all these details will be arranged hereafter ; and, no doubt, these arrangements will be carried out successfully. Again, we ask, what is India doing, and more especially what is Southern India doing ?

Two Weeds. The wild passion-flower and a kind of sorrel are playing havoc with some estates on the Nilgiris, and both are said to be spreading to an alarming extent. The roots of both penetrate the soil to a great depth, and come up above ground a long distance off. Digging seems to have little effect on the first one, as it appears a short time after as bad as ever. The sorrel grows thick like a carpet. Both are said to have been caused by careless coolies throwing the seeds on the land. Some planters are, however, of the opinion the sorrel was introduced in the poonac. Any information on this subject would be welcome.

A Journalistic "Birthday." The first anniversary of the birth of the infant *Indian Gardening* has been celebrated, and we among others press forward to offer congratulations and good wishes. It is a thriving and healthy babe, and should grow into a strong and prosperous manhood. We have quoted it in our columns on various occasions, and shall no doubt do so often in the future, for its contents gain in interest as its age advances. The world of flowers and shrubs and ferns, etc., in India is large enough to call for a special journal such as the *A.G.*, and there is reason to believe that the paper "meets a felt want."

Fine Tea. Some fine tea sold at Colombo has commanded fine prices. On 14th instant the following rates were paid for a break of tea from the High Forest Estate :—

		lb.	cents.
30 hf. c. Broken Orange Pekoe...	...	1,680	88
23 „ c. Orange Pekoe ...	...	1,104	64
27 „ c. Pekoe ...	...	1,242	53

Average 71 cents.

These prices represent As.14-1, As.10-3, As.8-5, and an average of As.11-4, respectively. Proof such as this, that fine teas will command high rates, should do much to encourage the improvement of quality in preference to mere increase of cultivation.

Bengal United Tea Company. At the first ordinary general meeting held on 1st instant, the Chairman, in moving the adoption of the report, stated that the profits of the season amounted to £2,677, and after debiting this with London expenses and dividend on the preference and ordinary shares paid in May last, there remained a balance of £1,424 to be carried forward. He said the season had been notoriously an unfavourable one, and that was made worse by the fall in prices. Still on the whole, he did not think the accounts were disappointing. The Directors had taken the exchange at 1*s.* 2*d.*, while the present rate was 1*s.* 4*d.* He feared the present season had started under very unfavourable auspices, the great dro having lessened the production and deteriorated the qu while the range of prices was also very low. After discussion, the report was adopted.

The London Market. Telegraphing to the *Time Ceylon* on 15th instant, Messrs. Wilson and Stanton reported a generally steady ma with good liquoring Pekoes in improving demand and P for price dearer. Fair liquoring Ceylon Pekoe Souc was quoted 6½*d.*, and the average of Ceylon tea so garden account during the week 8¼*d.* This is a jump Reuter reports a good demand at fully last prices, and quotes the average at 8¼*d.* (which in his case is an adv of ⅜*d.*) [The *Ceylon Observer* is so excited by this new the way, that it inserts a heading, "Tea 1*s.* up: news." A very different thing from "Tea is up, "Tea 1*d.* up" &c.] Out of 16,000 packages offered fo 15,000 were sold. Of Indian tea, 39,000 packages offered and 35,000 sold. The average was 9¾*d.*, a rise

16*th September*, 1897.

Average price of Tea	...	...	...	7¾*d.*
Exchange (demand)	...		...1*s.* 3 26-32*d.*	

15*th September*, 1898.

Average price of Tea	...	...	...	8¼*d.*
Exchange (demand)	...	...	...	1*s.* 4 32*d.*

A New Digestible Tea. A great many proposals have made for rendering tea more di ble than it is commonly supposed to be by people who from dyspepsia. It is believed that the tannin wh present in most teas has an injurious effect upon the of the stomach. Whether this is a fact or not is sca within our province to say, observes the *Grocer*, but is no doubt that the tannin can be extracted, or, sha say, prevented from passing into solution when the made. Up to the present the methods of effecting have chiefly dealt with the tea after the infusion has made, but we have recently heard of a new plan in tea is treated in bulk, so that a grocer may be able t in recommending his tea to his customer, that when th is drunk no ill effects will possibly follow to the dige organs. This process is designed to prevent the ta acid of the tea being dissolved when the hot water is p upon it in the tea-pot. It consists in adding to the dr in bulk a small amount of gelatine or of gum acacia, but albumen will do quite as well. At the same time a quantity of tartrate and carbonate of potash and so

COFFEE SHADE TREE.

Sun-dried Erythrina Lithosperma loppings, &c., contai ton :—

61·50	lbs.	Nitrogen.
57·38	„	Potash.
14·92	„	Lime.
13·68	„	Phosphoric Acid.

Seed cured under Messrs. Sutton and Sons' advice.

Orders should be booked early for the 1898-1899 crop of seed the parent trees of above analysis at Rs.6 per pound conta about 2,000 seeds. *Germination guaranteed.*

Only thornless variety extant, and is not procurable anywhere from the

MANAGER, ARIENKOW ESTATE,

Shencott

added. This helps the tea to draw, prevents the tannin from dissolving when the tea is made, so that principle which is thought to be so objectionable is eliminated.

A New York "Food Show."

A New York correspondent writes regarding a great food show that was open there last July that it was the best display of its kind ever seen in the United States. He says :—This particular food show has in addition to its permanent features about sixty booths, pavilions, cassetl, cottages, brilliantly decorated in colours, from which proprietary articles are exhibited and their merits demonstrated. The Ceylon and India tea blenders are much in evidence, and from their gaudy booths tea is served to the thousands that crowd every aisle of the great room. Two bands discourse music, and in a large room throngs gather to listen to a cooking lecture. Along one side of the room is a glass-front cold storage room 250 feet in length, in which may be seen every variety of meat, poultry, game, dairy products, fresh fruits, vegetables, and fresh fish. There is a liquor department occupying a very large space ; a counter where coffee is served, also pastry of various sorts and ice cream. The coffee department is an oblong space surrounded by heavy iron or steel bins, beautifully japanned, and each with a capacity for several hundred pounds of coffee. Over this space is a showy canopy or roof in brilliant colours, illuminated by electric lamps. Coffee mills run by electric force or in the enclosure, and are used to grind the coffee as wanted. It is said that 6,000 pounds of roasted coffee are sold every day from this department.

Tea "Politics" in Ceylon.

At a meeting of the "Thirty Committee" held at Kandy on the 10th instant, it was resolved, *inter alia*, (1) That all exporters from Ceylon of Green Teas made in this country be given a grant of cents 10 per lb. on an all-round break. (2) That a reliable person (expert) in Colombo be employed to draw samples from such break, and that the production of his certificate that it is first-class tea, and a copy of the bill of lading being sent to the Secretary, he be authorised to pay over the said grant to such exporter. (3) That the grant above mentioned be in force for nine months, with three months' notice in the event of the "Thirty Committee" desiring to determine the said grant. (4) That the sanction of the Governor in Executive Council be obtained for the appropriation of an amount not exceeding £2,000 sterling to enable the Committee to give effect to the foregoing resolutions. (5) That Messrs. Forbes & Walker be requested to act as experts and to furnish the necessary certificate. This subsidising of a special style of tea is a new departure, and may easily lead the Committee into greater expense than it has estimated. £2,000 looks a large sum, but it remains to be seen whether it will be exceeded at all, or will prove utterly insufficient. If there is a good demand for Green Teas such as Ceylon, our produce planters will no doubt be glad to meet it even without a bounty. Once this subsidy is promised, the inducement to grow in excess of requirements becomes great, and the subsidy may defeat the aim of the donors by a stimulating production as to render a decline in value—to the extent of 10 cents or more—a certainty. On the subject of the appointment of Mr. Kelway Bamber as Agricultural Chemist, the Committee approved the offer made to that gentleman and selected twenty districts as giving a complete representation of Ceylon tea. They recommended that in Duntula, Kelani Valley, and Dikoya (representing over 30,000 acres each), two estates should be selected in each case, and they then resolved "That the Secretary do forward the list of districts above-mentioned to all District Associations, intimating that the estate in each of such districts will be visited by Mr. Kelway Bamber, and inviting the District Associations to appoint a Sub-Committee to select the estate in the district to be so visited, thereafter transmitting the name of the estate so chosen to the Secretary, 'Thirty Committee,' before the 1st October, 1898, from which date Mr. Bamber's engagement begins. If the name of an estate is not sent in to the Secretary by the 1st October, it will be deemed that the selection of an estate is left to the decision of the 'Thirty Committee.'" The remarks of the Committee on the pushing of Ceylon Tea in foreign markets are left over for comment in a future issue.

LETTERS TO THE EDITOR.

LEAF DISEASE.

Sir,—Can you, or any of your readers, kindly give me any advice in the matter of leaf-disease among coffee? Can any cure be effected, or preventative in any way in the case of *young* plants, on the same plantation where older ones are attacked?

James Petley.

P.S.—I would also ask, have you any book you could send me per V.P.P., or can you do me the kindness to refer me to any within your knowledge, and I shall be much obliged.

Toungoo, Burma, } J. P.
6th September, 1898. }

[Note.—We can scarcely do better than refer our correspondent to the Committee Proceedings of the U.P.A.S.I. with reference to Leaf Disease, which appeared in our last issue. We know of no book from which he can obtain more useful practical hints than are there given. The best preventive is to strengthen the plant: select seed carefully and cultivate sufficiently liberally so as to provide the plant with nutritive food.—Ed., *P.O.*]

"CHICK" REDIVIVUS.

Sir,—Since writing to you about the non-bearing of a lower sucker from a Chick coffee tree, I have had the pleasure of seeing a very nice crop on the suckers of undoubtedly chicks not far from this estate. I can't say much for my friend's "powers of observation" after this.

Kadur District, } "D".
4th August, 1898. }

GENERAL ARTICLES.

THE U.P.A.S.I. SECTION.

[Under the Control of the Secretary, U.P.A.S.I.]

As remarked last week, Coorg's chance of obtaining an Agricultural Chemist is now remote, though the Mysore Government's expert, when he arrives, will no doubt be allowed to render assistance to Coorg planters as well as those in Mysore. Meanwhile, the Mysore Durbar have given a practical proof of their willingness to lend a hand to Coorg. The request was recently made, through the Resident in Mysore, that the services of Mr. Cameron, Superintendent of Public Gardens in Mysore, might be lent for a time in order that he might proceed to Coorg

and conduct certain experiments and make investigations with a view to the improvement of coffee cultivation and the prevention of leaf disease. The Durbar have acceded to this request, and have directed Mr. Cameron to include Coorg in his tour of inspection during the next cold weather and to conduct the investigations suggested by the U.P.A.S.I. Details are to be settled with the Secretary, and no doubt all coffee planters will reap considerable benefit from the result of Mr. Cameron's visit. It is to be made as short as possible, but there will doubtless be time for him to give some useful advice, which will in due course be passed on from Coorg to other districts. The generous action of the Mysore Government deserves a very warm expression of appreciation and thanks.

Alluding to Mr. G. L. Acworth's evidence before the Indian Currency Committee, the *Times of Ceylon* says, Mr. Acworth was not so ready with his figures as was Mr. Christie, and wrongly stated that India had driven China tea out of Australia long ago. It criticises more severely by using as a sub-heading to its remarks the words "An overdrawn picture from his Agent." But it does not point out wherein the exaggeration or error (?) lay.

The Lawrence Asylum Press wishes to publish a revised list of estates and owners in its Almanac for 1899. Individual planters might render assistance by sending the necessary information direct to the Superintendent of the Press. Where possible, "proofs" for revision have been circulated to the Hon. Secretaries of District Planting Associations.

The office of the U.P.A.S.I. has now been removed to 16/17, Armenian Street, Madras.

BRAZIL COFFEE NOTES.

A PHENOMENAL blossoming appeared on the coffee trees throughout a great part of the State of Sâo Paulo during the last half of July. What the result will be, no one seems to know. The blossoms are due in September, but they appear some five or six weeks earlier. It is predicted by many that the blossoms will not adhere, and that they betray weakness in the trees. A project has been presented to the estate legislature of Sâo Paulo, authorizing the State executive to acquire a pavilion at the Paris exposition of 1900 where the agricultural products of Sâo Paulo, principally coffee, can be favourably exhibited. The purpose is to make a propaganda in favour of coffee, and for this purpose coffee will be placed on exhibition in every conceivable way, and cups of the beverage will be distributed to the public. All machinery for preparing coffee for the market, together with machinery and apparatus for roasting, grinding and preparing the beverage, will also be exhibited. It is a practical idea, but why should not the planters bear the expense, instead of the State treasury? Why should a Pindamonhangaba shoemaker pay for a propaganda calculated to benefit the coffee planters alone?—*Rio News*, Aug. 2nd.

IRRIGATED COFFEE ON THE NILGIRIS.

THE Nilgiri correspondent of the *Planter* says:—"I was eye witness to a very interesting experiment being carried out on a small coffee estate growing in a hot district with deficient rainfall and at an elevation of 5,000 feet. At the time of my visit I saw irrigation water being applied intermingled with silt, which the proprietor informed me was found to be very beneficial. His belief was that this silt, although of the subsoil, was rich in mineral matter containing 15 per cent. of potash, and that by the treatment adapted, this large quantity of potash was made available as plant food. The coffee grew under the somewhat heavy shade of the *grevillea robusta*, which was making a perceptible change in trees, as they were throwing out fresh wood and clothing the selves with healthy foliage. The owner admitted having made mistakes with this coffee (which, however, are the universal mista of the district), namely by putting them too close together, *i.e.*, by six, and by stopping them at the usual height of 4½ or 5 f His intention is to let the trees grow up to their natural height to root up alternate rows of trees, so as to give those remain ample food root space."

COFFEE PLANTING IN MEXICO.

(Sir T. J. Lipton's Project.)

Though some Mexican coffee-growers are grumbling at the fit on their produce, it would appear that there is still from 100 to per cent. margin between the cost of growing Mexican coffee and selling price. The complaints are heard because there is no lon 300 or more per cent. profit in raising the berry. Coffee can grown in Mexico for about 8 cents silver per pound. From favou districts transportation to New York costs 50 cents per 100 poun The prevailing prices in New York for Mexican coffee range fr 8 to 16 cents gold per pound, while some fancy grades bring hig prices; therefore, it is readily seen how the profits of 100 and 200 cent. are realised. Coffee has always stood at the head of Mexi agricultural exports, and will probably continue to do so for years come. During the last ten years Mexico has exported coffee to value of nearly 74,000,000 pesos. We learn that Sir Thomas J. Lip meditates a new and important movement in the direction of Mex where he proposes opening up some of the largest coffee plantati in the world, and also large areas for the cultivation of tobacco a cocoa. The plan, which has reached an advanced stage, contempla 10,000 acres in coffee, 10,000 acres in tobacco, and 5,000 acres cocoa.—*H. & C. Mail.*

TEA GARDEN CUSTOMS IN BURMA.

A CONTEMPORARY writes:—A somewhat curious custom prevails most of the tea-growing hill villages, Mr. Leveson says in his report the Northern Shan States. The baskets in which wet tea is packed conveyance on bullocks are of a peculiar shape, somewhat smaller diameter than the ordinary bullock-basket used for rice, but not a deeper. It is generally said that if tea is carried in any other baske the tea goes bad. Possibly the real reason for their use is that, t roads being narrow hill-tracks in which there is often only just ro for a laden bullock to pass, a narrow pack is less knocked about projecting rocks and enclosing hill slopes than a broader load. T baskets being of less capacity below the yoke-poke, packets of tea a carefully fastened with bamboo strips to the top of the basket on eith side of and projecting above the pole. The arrangement of the baskets is a matter of some skill, and can only, it is supposed, performed by the villagers, who charge a fee of eight annas a bullock. This fee is usually paid in coin as an addition to the pa ment in rice for the tea. With this exception, generally speakin only the larger garden-owners in a few of the more importa villages, some of whom also possess pack bullocks, ever see the pr of their tea in coin. In the outlying villages money is scar There are only three bazars in Tawngpeng State, two in the extre south-west, and one in the extreme east of the State, and even them the transactions are barter almost as often as sale. Old t gardens which, when the State had been in a more unsettled con tion, had been neglected, and had consequently lapsed into jung are being re-cleared and elsewhere new trees are being plant The outturn of tea is capable of large development. Both to fos this development, and to reduce the price of rice, which at prese sells at Rs.4 per basket for the greater part of the year, increas facilities for the transport of goods are urgently required, and t principal need of the State is undoubtedly a cart-road communic ing with the Railway.

AUSTRALIANS AS TEA DRINKERS.

THE following is from the Melbourne *Leader*:—

The people of Australasia, as frequently remarked, are well advance of the rest of the human race with regard to their consum tion of tea. The Chinese, however, are omitted from the comparis

as owing to the lack of Celestial Empire statistics, there is no means of ascertaining what position it occupies per capita in the list of the world's tea drinkers. The Australian average consumption per head is a fraction over 7 lb. a year. The United Kingdom comes next in the list with an average of 5¾ lb. The following are the Australian tea statistics for 1897 :—

Colony.		Population.	Tea consumed.
Victoria	...	1,170,000	9,286,286
West Australia	...	157,781	1,414,992
South Australia	...	356,877	2,734,827
New South Wales	...	1,311,440	9,594,198
Queensland	...	480,079	3,074,080
Tasmania	...	167,062	901,670
New Zealand	...	719,292	4,564,840
		4,362,531	31,570,893

The value of the 31,570,893 lb. of tea is given approximately as £975,000. It is interesting to note that the quantities of tea consumed per head in the several colonies exhibit considerable variations. West Australia, with a consumption of about 9½ lb., is an easy first. Next comes Victoria with 8¾ lb., whilst the other colonies, in order, are South Australia, 8 lb.; New South Wales, 7½ lb.; Queensland, 6¾lb.; New Zealand, 6½lb.; and Tasmania, 6 lb. As coffee drinkers the Australians stand on a much lower scale, their average per capita consumption being about ½ lb. per annum.

HINTS ON THE WEIGHING OF TEAS IN LONDON.

MR. A. PHILIP, Secretary to the Planters' Association of Ceylon, has forwarded the following letter and inclosure to the Press :—

THE METROPOLITAN BONDED WAREHOUSES, LIMITED,
9, JOHN STREET, CRUTCHED FRIARS, LONDON,
9th August, 1898.

DEAR SIR,—We invite your attention to the enclosed paper, copies of which we are mailing you under separate cover, which we put forth as containing, in our opinion, instructions in weighing on the Ceylon Gardens, which, if carried out, would show the minimum loss in conformity with the English Custom House Bonded Regulations.

However carefully we, or others, may carry out the weighing—in the face of these Regulations—there may frequently be a larger loss shown than is necessary, unless the planter understands the same, and makes his weights accordingly. Of course, it will be for him to decide as to whether *le jeu vaut la chandelle*, that will depend upon the value of his tea no doubt. It is evident that the Warehouse Keeper can in no way guarantee weights; we can only deal with the packages as they reach us, and very often indeed have to record a quite unnecessary "shortage" upon invoice weights, owing to the want of a system on the gardens.

Of course, Superintendents can ascertain from their Colombo Agents whether their teas are generally re-bulked in London or not. We must add that our reason for thus coming before you, and our only interest in the matter, is the hope of being of some service to our planting friends in Ceylon, and we would ask you kindly to distribute the circular among the members of your Association at your next General Meeting, and we shall be glad to have the consensus of opinion upon the subject.—We are, dear Sir, yours faithfully, The Metropolitan Bonded Warehouses, Ltd.,

(Signed) LESLIE MARGETT,
Secretary.

A LABORATORY FARM.

MR. JOHN MILLS supplies the *Humanitarian* for August with a highly instructive account of the laboratory farm founded and endowed by Sir John Laws, under the heading "Scientific Agriculture at Rothamsted," near St. Albans. For more than fifty years careful experiments in agriculture and argicultural chemistry have been carried on there.

The rainfall is carefully studied. Results prove that the "fertilising rain" is an incorrect phrase, for the rain washes out the nitrogen which is the fertilising element from the soil! Nitrogen is the principal element, it appears, in the fertility of land. Arable land treated only with mineral manures without nitrogen becomes impoverished. Conversion to permanent grass is needed to restore the nitrogen, which is, however, also restored by its fixation from the atmosphere by growing leguminous crops. Even when nitrogen is present in manures, the plant cannot assimilate it except the soil be "infected" with the power to do so; and this power is supposed to be the work of bacteria. These bacteria flourish in the roots of leguminous plants, and once present enable the plants to take up nitrogen freely from the air. Hales, two hundred years ago, found that a plant growing in a pot of soil increased in weight out of all proportion to the very slight diminution in weight of the soil. The Rothamsted chemists have shown that 95 per cent. of the weight of the plant comes from the air, not the soil.

Experiments with and without manures have yielded the following results, which Mr. Mill put in this tabular form :—

Averages.			14 Tons Farmyard Manure every year.	Without Manure every year.	Mixed Mineral Manure alone.	Ammonium Salts alone.
			Bushels.	Bushels.	Bushels.	Bushels.
8	years,	1852-59 ...	34⅜	16⅛	19	32⅜
8	,,	1860-67 ...	35¾	13½	15¼	31¼
8	,,	1868-75 ...	35⅜	12¼	14	28½
8	,,	1876-83 ...	28⅝	10½	12⅝	27¾
8	,,	1884-91 ...	39¼	12¾	13¾	32½
20	,,	1852-71 ...	35⅞	14½	17	31⅝
20	,,	1872-91 ...	33½	11½	12⅞	29½
40	,,	1852-91 ...	34⅞	13	15	30½
50	,,	1844-93 ...	33½	13½	...	...

The average without manure for fifty years is above the average of the United States, and about the average for the whole world.

COFFEE IMPORTS INTO THE UNITED STATES.

THE following figures are given in the report of the U. S. Bureau of Statistics to show the total net imports of coffee during the last six years :—

Year ending June 30—			Pounds.	Value.
1898	...	...	851,691,346	$62,674,241
1897	...	...	724,559,536	79,893,943
1896	...	...	572,671,840	83,534,366
1895	...	...	643,234,766	94,599,880
1894	...	...	547,068,994	89,600,572
1893	...	...	551,395,250	78,444,496
	Total	...	3,890,621,732	$488,747,498
Average per year		...	648,436,955	$81,457,916

The following table shows the average import price for the past six years :—

Year	Price per lb.—cts.	Year	Price per lb.—cts.
1898	... 7·3	1895	... 14·7
1897	... 11·0	1894	... 16·4
1896	... 14·6	1893	... 14·0

The coffee imported was received from the following countries :—

United Kingdom	...	1,796,985
France	...	859,419
Germany	...	7,314,801
Netherlands	...	2,409,967
Other Europe	...	2,427,834
Central America	...	35,862,385
Mexico	...	34,511,168
West Indies	...	6,412,209
Brazil	...	661,008,372
Other South America	...	90,113,241
East Indies	...	21,311,159
Other Asia and Oceanica	...	3,947,018
Africa	...	42,305
Other countries	...	1,477,352
Total	...	870,514,215

LOOK ON THIS PICTURE.

We take the following from the remarks of a planter in a recent issue of the *Ceylon Observer* :—

What a grand coffee year this would have been had we been growing it as in by-gone days. These long spells of dry weather would have ripened the wood for the big blossom in September on the Uva side. Should this weather continue, the cardamom crop will be very short this year, and some of us trust to the cardamoms paying for the loss on the tea.

AND ON TIHS!

THE following comes from the *Times of Ceylon* :—

THE LAST COFFEE ESTATE IN CEYLON.

ROEHAMPTON JOINS THE GREAT MAJORITY.

Haputale and Badulla are the only two important districts in which coffee is still cultivated, but even there the older cultivation has in every place given way to tea. That is to say, all estates have planted up certain portions with the newer product. Spring Valley Badulla, one of the crack coffee places until quite recently, is now a fine sheet of tea; and, in Haputale, Niabedde, Gonamotava and Craig have all gone in for tea as well as coffee. But Roehampton has never yet gone in for it. The estate, which once belonged to Geo. Hudson, has stuck to its coffee and has obtained good crops—indeed, the coffee below the road—and above it too (how well the writer remembers it being felled and burnt off!) promises to have a good crop this year. But the estate has not a tea bush on it, and to-day, we believe, it is the only good old coffee estate in the island of which this can be said. But all is to be altered. A part of the estate through which the railway goes is to be planted up, we hear, in tea this next North-East Monsoon, and we suppose that this is but the beginning of the end. However, there is still a good deal of fine coffee on the estate, and with careful cultivation, it will still yield paying crops.

AND AGAIN ON THIS!

A CORRESPONDENT writes to the *Times of Ceylon* anent the drought in Uva and its effect on Tea and Coffee :—

The drought we have been having for the past few months is still continuing, and vegetation is suffering as a consequence. Tea is flushing very poorly, and the output from this side, I fear, for the year will be much below estimates. The season so far, however, has been capital for coffee. The trees are full of crop, and another fine blossom has set in. The present appearance of coffee makes one think of the old days when coffee was "king."

COFFEE IN MEXICO.

WRITING to the *Ceylon Observer,* Mr. E. O. Darley makes the following remarks about the cultivation of coffee in Mexico :—

Messrs. Clarke and Fort, whom you quote as saying coffee did not pay in Mexico, on account of present low prices, can hardly have looked very closely into the matter—in fact I heard that they were never off the railroad and only saw the poorest part of Mexico, and the one coffee district of Cardoba, the oldest certainly, but having the thinnest soil and smallest crops, though the dearest land because being easy of access to Mexico city and Vera Cruz. On the Isthmus of Tekuantepee, in Oaxa and in Chiapas, as fertile land as any in the world, suitable for every tropical product, can be bought in small blocks of 200 to 1,000 acres, with good transport facilities, for from $15 to $25 silver per acre, large tracts at a much cheaper price, and I will guarantee to plant coffee and bring to bearing for $120 (one hundred and twenty dollars) per acre. Coffee can be produced for from $5 to $8 per 100 lb., the former dried in cherry and peeled, the latter pulped, washed, peeled and classified ready for market. The former is quoted to-day at $20 per 100 lb., and the latter in New York at $30 and $32; and as coffee bears here some crop at two years old and one lb per tree at three years old and at least two lb. per tree at five years old, with 1,000 trees per acre, there is still a very handsome profit even at the present low prices. He observes in a P.S. that the Mexican dollar is worth about 2 shill £1 exchanging for $10.50 at present rate. Mexican coffee properly cured will always bring a good price in New Yor mixing with the inferior South American, so much used i United States, to give it a flavour. Since Messrs. Clarke and were in Mexico, eight American Companies have bought 25 acres of coffee land on the Isthmus alone, which does not look the Americans feared for the future of Mexican coffee. soil here is so rich that crops have to be seen to be belie and coffee if grown under *high moderate shade* only needs pru once and weeding four times a year; if grown without sh the crops are heavier, but the growth of weeds is tremen and the extra cost of weeding counterbalances the extra When I came to this district some three years ago, my neighb who has gone in for sugarcane, had near his house about 25 c trees that had been planted by the Indians at least 20 y ago. They had never had any attention at all and he was a to cut them down as they were unsightly, having three or stems and a mass of old wood. They yielded that year three lb an average of clean coffee. I asked to be allowed to prune a fe them to demonstrate what pruning would do. I pruned four of t and was informed by four embyro American coffee planters they certainly would give no crop next season. The next crop carefully gathered from three of them (the fourth was so hea laden with crop that two-thirds of it broke down), dried and clea and they averaged 13½ lb. per tree. Last year Mexico produ 14,817,662 kilos coffee, value $9,876,532. *I have seen no leaf-dis or heard af any.*

INDIA'S EXPORTS OF TEA.

THE Report on the Administration of the Customs Departm for the year 1897-98 shows that the exports of tea increase nearly two million pounds or 1·3 per cent. owing to larger shipm to all the exporting countries. The excess of production demand, the rise in exchange, and the fact that the teas generally deficient in good liquoring quality, lowered the ave price of the article, which stood at 8 annas and 5 pies per lb. in year against 8 annas and 8 pies in 1896-97. Ceylon tea continue gain favour, and the quantity exported during the year incre by 3·9 per cent. The Collector of Customs observes :—"In v of the active competition of Ceylon teas, the Indian planters h taken advantage of the warning note sounded, and are endeavouring to manufacture a better liquoring quality of tea, are not trusting entirely to quantity for their profit, experience hav shown that most of the lower grades do not repay the cost of duction and manufacture."

A propos of the above, we quote some of *Capital's* remarks the report of the Directors of the Nedeem Tea Company, Limi wherein it was stated that the crop of the Company's garden expected to be landed in Calcutta at a cost of As.4-11 per lb. contemporary comments on "the fact that one of the most flourish tea companies in existence, making an enormous crop, and t able to do things cheaply, cannot land its teas in Calcutta un five annas per lb.," remarking :—"What does this mean? We not for a moment imagine that the gross proceeds will work o six-anna average at the end of the year in these days of depre prices; so how the expenses are to be covered is more than any can see, as even at a six-annas average there is only one anna to pay Brokers' commission, Directors' fees, Agency charges, all the odds and ends that invariably crop up in an unexpe manner.

Now, if a company like the Nedeem cannot do more than m two ends meet—and it certainly looks as if more could not be d —what is to become of the hundred and one other concerns that fairly good times can do little better than cover expenses? Her a problem for anyone to work out; the only thing is for some to try and find a way out of this thorny wood. Many suggesti have been made, but none seem to have borne fruit. Planters th selves might effect a very considerable saving, and at the same t improve the *morale* of the coolie mind. For depend upon it, as s as the much-pitied cooly found out his occupation of running a

MILLIE & REDMOND, late P. THOMPSON & CO., *Ootacamund, Engineers and Contractors.*

m one garden to another, and always getting well paid for doing was gone, he would soon settle down into a respectable work-n; and the effect on the rest of the garden force would be nderful.

There might, too, be a very considerable reduction in the item of e chowkidars, etc., most useless but expensive appendages to a rden. The want of unanimity in the districts of Cachar and lhet is notorious; and it has been fostered, we are sorry to say, by e agents in Calcutta not combining and discountenancing such actices as the grabbing of imported labour—not time expired en—by one garden from another. What has been the result of this grab—to put a mild term on it? Have the gardens doing it ored? To this we reply, "for a time only;" and the only real iner is the cooly who, by his listening to the blarney of crimps, s managed to raise his pay 25 per cent. In Assam, we are glad say, such practices do not obtain, and would not be tolerated; but ere is a King in Israel there, whilst in Sylhet and Cachar they all e or would like to be Kings in Israel.

THE RUSSIAN MARKET FOR TEA.

Mr. F. H. Skrine has been writing in the *Pall Mall Gazette* the subject of Russia as a field for British enterprise. A ry interesting portion is that which relates to Tea. Mr. krine says :—

The supply of tea to Southern and Asiatic Russia opens up another sta of possibilities to our Indian and Ceylon planters, afflicted as ey are with the consequences of over-production. As every one ows, the samovar and its satellite, the teapot, are ubiquitous roughout the empire, and a weak infusion of their product served in tumblers where all other creature comforts fail. The ussians import more than ninety million pounds of tea annually in ite of a customs duty of 1*s.* 9*d.* per pound. The great bulk is still rnished by China, whence it is imported at very low freights by e vessels of the Volunteer Fleet, despatched to the Far East with oops convicts, railway material, and munitions of war. Of late ars Ceylon, the most progressive of our Eastern dominions, has ntrived to secure a share in this vast supply. Last year she ported about two million pounds of tea to Russia, rather more an twice the quantity sent there in 1896. Ceylon tea, however, is arly all consumed in Central Asia, where it is conveyed by the anscaspian Railway; for Indian and Ceylon planters are still norant of local conditions which have been long since grasped by e wily Chinaman. The Russian consumer eschews tea manufac-red by the processes in use on English plantations. In his eyes achinery for rolling the leaf and artificial heat applied to wither it e abominations. A great Moscow merchant remarked lately that e difference between hand-made and sun-dried tea and that result-g from rolling and withering machines is the difference between waltz played by Strauss's orchestra and the same tune mangled a barrel-organ! Nor is this all. To suit the Russian taste, the aves, when plucked, are allowed to stand in heaps and are mois-ned till the process of fermentation sets in, which gives a peculiar t not disagreeable flavour, and deprives the cheering drink of me of its noxious qualities. When our planters have grasped this ct, then, and not till then, will they find a market for their wares Holy Russia.

The crushing duty levied on imported tea has given an impetus to e attempts to grow the precious herb in Russian territory. The il, climate, and rainfall of the western slopes of the Caucasus are minently suited to the culture. So familiar seem the landscape that its before the Anglo-Indian traveller's eyes on the railway journey om Batoum to Kutais that he marvels at the absence of those glori-ed cabbage gardens that dot the Himalayan slopes. Labour, indeed, costly owing to the thinness of population, and field hands demand *s. 6d.* per diem. It could, however, be imported at a much lower gure, and the difficulty in this respect is mere child's play compared ith that successfully grappled with in Assam. The question has, ndeed, passed beyond the experimental stage, for the Chakva alley, seven miles north of Batoum, encloses tea gardens extending ver five hundred acres. The pioneer was a retired Engineer fficer named Solovitzoff, who so far back as 1885 planted 100 acres ith China seed. Seven years later the Russian Lipton, M. Popoff, f Moscow, followed suit, and his jealously-guarded plantations ver 250 acres. The imperial domains include 150 more, which till lately were directed by an Englishman. In spite of mistakes inseparable from new ventures and the huge salaries lavished on Chinese operatives, M. Popoff's gardens have proved a commercial success, and he was able last year to present a sample of drinkable Russian tea to the Imperial family.

WORKING OF INDIAN TEA COMPANIES.

The annual and carefully-prepared sheet just published by Mr. George Seton, giving the results of the workings of forty-five Indian tea companies for the season 1897, discloses some remarkable changes in comparison with the previous year. Most conspicuous of all that relates to these tea companies in India for the last twelve months under review is their rapid growth and development in that time. Measured by their acreage, they owned 173,074 acres in 1897 as contrasted with 102,397 acres in the former year. These yielded an aggregate crop of 65,726,558lb. (sale weight) in lieu of 50,180,580lb. in 1896 : and the total paid-up capital for the last year reached 7,215,498*l.*, as compared with only 4,725,286*l.* in the previous season. We may here explain that the 1896 figures used for the purpose of comparison are reproduced from our summary in 1897 about this date, as they are for convenience sake omitted from Mr. Seton's statement this year. The general position of the tea companies is better understood aud appreciated when the separate amounts, as representing the main particulars of the last year's workings, are placed side by side with those pertaining to the 1896 season. This view of the case is further strengthened by the fact that, whilst the ratio of expenses to receipts in 1896 was put at 77 per cent., in the past year it rose to 82 per cent.; and instead of the average rate of dividend amounting to $7\frac{3}{4}$ per cent. as in the preceding year, for the whole of 1897 it did not rise above $5\frac{7}{8}$ per cent.

An interesting, if not an entirely new feature to observe in these Indian tea companies, is the formation of fresh combinations, such as the Consolidated Tea and Lands Company (if we interpret Mr. Seton's abbreviations aright), and the Amalgamated Estates, the first-named of which is the most gigantic of all. It claims a cultivated area of 33,332 acres, of which two-thirds are covered with "mature" plants; whereas the next nearest to it in size do not possess more than from about 8,000 acres to 13,000 acres of tea-plants of all sorts. The capital of the Consol. Tea and Lds., as this company is described, is returned as 1,520,000*l.* sterling; and the crop raised under its auspices equalled 11,578,501lb. (as per A/sale weight). After receipts of 367,070*l.*, or 7·62 pence per lb., for the tea sold, and when 284,272*l.*, or 5·90 pence, had been allowed for expenses, there was a net profit left of 82,000*l.*, or 1·72 pence per lb., which it seems was enough to pay a dividend of 10 per cent. on the year's working; leaving a reserve (and balance forward) of 91,905*l.*, or 6·05 per cent. on capital. A few companies, however, with less capital, narrower areas, and of course much more moderate crops and sales, have done better as regards the making of profits. Among these may be mentioned the Assam, Brahmapootra, Jorehaut, Dooars, Doom Dooma, Lebong, Amalgamated Estates, Balijan, Noran, and Rajmai tea companies which have managed to earn dividends of from 10 per cent. to $17\frac{1}{2}$ per cent. But, satisfactory as this may appear, there were instances in 1896 where some of these very companies paid dividends of 15 per cent. to 20 per cent. on their outlay.

There were besides several minor tea companies whose rates of dividend were even worse than the foregoing, and comparatively few which succeeded in paying as much as 8 per cent. or 9 per cent. The latter was the amount credited to the Empire of India Company, while the Chubwa, Jhanzie, Jokai, and Lankapara proprietors had to be content with the smaller figure. Following closely on these tea producers were the British Assam, Meenglas, Attaree Khat, British Indian, Chandpore, Chargola, Darjeeling, Doloo, Scottish Assam, and Tingri companies with their 5 per cent. to 6 per cent. rates of payment; and other less fortunate bodies of tea-planters could only return to their shareholders dividends of 3 per cent. to 4 per cent. Some again earned merely 1 per cent. to 2 per cent. to satisfy their claimants, and certain companies, seven in all (whose names for obvious reasons we forbear to mention), had nothing to disburse to their confiding patrons, and so caused business for the 1897 season to be, on the whole, of an unsatisfactory nature. All this, however, was too well known beforehand to occasion any surprise amongst those acquainted with the secret movements of the tea trade at home; and there can be no doubt that the combined ill-effects of last year's famine, the frontier disturbances, and damage done to crops and out-buildings by earthquakes in our Indian provinces, told seriously upon

the industrial pursuits and conditions of life of the native populations. Bearing these cross circumstances in mind it is no wonder that, though an enormous tea crop was raised, its quality generally was of a poorer class, which consequently failed to yield a higher price with which to defray the heavier expenses of cultivation and contribute towards more handsome dividends.—*Grocer.*

THE LONDON CUSTOMS SYSTEM OF WEIGHING CEYLON TEAS.

INSTRUCTIONS SHOWING HOW TO REDUCE THE LOSS TO A MINIMUM.

In order to avoid the loss usually experienced in Ceylon from the system of weighing in vogue by the London Customs authorities, viz., to give the turn of the scale against the importer, both on gross and tare, the following hints will prove of value to Proprietors and Superintendents of estates:—

1. The tare (that is the weight of the empty package, complete with lid, lead, hoop-iron and nails) should in all cases weigh two to four ounces under the pound, whether the package be chest, half-chest, or box.

2. The gross weight of a package must in all cases weigh three ounces over the pound, whether the package be chest, half-chest or box.

3. When a shipment of teais not to be "Rebulked" in London, the Customs authorities "average tare" the break, that is to say a small percentage of the packages are opened, and their tares ascertained, and from these an "average tare" for the whole break is struck. In this case it is imperative that the tare of each package weighs alike.

4. When a shipment of tea has to be "Rebulked" in London, the tare of each package in the break may vary, *provided* the tare of each package is 2 oz. under the lb.

Subjoined is an example of the correct method of weighing two packages said to contain 100 lb. tea each, which have to be rebulked in London:—

	Garden Weights, Ceylon.	
Tare.	Tea Nett.	Gross Weight.
No. 1. 27 lb. 14 oz.	100 lb. 5 oz.	128 lb. 3 oz.
„ 2. 28 „ 12 „	100 „ 7 „	129 „ 3 „

	Customs Weights, London		
Tare.	Gross Weight.	Tare.	Tea Nett.
No. 1. 27 lb. 14 oz.	128 lb.	28 lb.	100 lb.
„ 2. 28 „ 12 „	129 „	29 „	100 „

The two samples above will demonstrate the point, inasmuch as in No. 1 the loss is 5 oz. only, which is the least possible, while No. 2 shows a loss of 7 oz., owing to the slightly lighter tare.

5. The following is a very usual but incorrect way of weighing teas, possibly through faulty scales or weights:—

	Garden Weights, Ceylon.	
Tare.	Tea Nett.	Gross Weight.
No. 1. 27 lb. 3 oz.	99 lb. 12 oz.	126 lb. 15 oz.
„ 2. 28 „ 1 „	100 „ 13 „	128 „ 14 „

	Customs Weights, London.		
Tare.	Gross Weight.	Tare.	Tea Nett.
No. 1. 27 lb. 3 oz.	126 lb.	28 lb.	98 lb.
„ 2. 28 „ 1 „	128 „	29 „	99 „

The Customs do not recognize ounces. With regard to Example 1, this package, the gross weight of which the Superintendent makes 126 lb. 15 oz., would only be called 126 lb. in London, the tare, according to the Superintendent, is 27 lb. 3 oz., over here the 3 oz. would be called 1 lb., and the tare is called 28 lb. The 28 lb. tare is deducted from the gross weight of 126 lb., with the result that the amount of tea in this package is said to be 98 lb., the owner of the estate losing the 1 lb. 12 oz. tea, which may quite possibly be in the package.

A still larger loss is to be seen in Example 2, in which the Superintendent has packed 100 lb. 13 oz. of tea, but only gets paid for 99 lb., the difference going into the pocket of the retailer.

6. A most important point is to have the weights of the weighing machine, used on the estate, constantly checked, and for this purpose a set of test weights should be kept. A beam scale is to be preferred to a platform one, as the former is the more accurate.

7. When a Superintendent, to equalize the tares of his pack adds pieces of lead or wood for that purpose, the material so should be fixed inside the package, so as to prevent it fallin when the package is opened in London.

8. A Superintendent may "tare" and pack his teas wit greatest care, but if he afterwards permits his carpenter to away from the top of the package before nailing down, all his c work will be wasted.

THE METROPOLITAN BONDED WAREHOUSES, LD.,
CRUTCHED FRIARS, LONDON, *June*, 1898.

COFFEE IN SAO PAULO.

THE rapid extension of coffee-growing in this productive pro of Brazil is attributed by Joquim Franco Lacerda, a merchant district, to the opening up of vast and hitherto, from a market of view, inaccessible tracts, by the great extensions of the Pau Mogyana, Rio Clarense, Sorocabana, and Ituana railway lines first of which has just declared a dividend of 20 per cent.), an inflow of a great current of immigration during the last de calculated at 1,000,000 souls, foreign and native. Besides enormous southern European immigration, many agriculturists come in since 1870 from Rio de Janeiro and Minas Geraes northern provinces, bringing labourers and establishing conside new centres of production.

PRODUCTIVE AGE OF COFFEE TREES.

The production of coffee, as well as the life of the tree, in the of Sao Paulo, depends on the quality of the land and the p There are said to be coffee trees producing to-day at the a seventy-five years. A gentleman resident in Santos states that trees yield 100 arrobas (3,238 pounds), or twenty-five bags, whi the province of Rio de Janeiro the yield is half that amount. proper coffee soil is the terra roxa (red earth), which is red about four feet deep, with a gravel subsoil. The method follow planting has much to do with the product, and in no country i world, particularly since the abolition of slave labour in 188 the substitution therefore of properly-fed and cared-for colonis more care paid to production. The plow as well as the hoe is used and also machinery for all purposes save the plucking o berry from the tree.

Sao Paulo is a State of large plantations. The absence of a tax, and the cost of 10 per cent. on land sales, have retarde democratization of the soil. That coffee is still profitable, not standing prevailing low prices and the unprecedented depreci in exchange (the milreis being quoted at about 7*d.*, or 14 against 27*d.*, or 54 cents, par value), is shown by the fact that o the leading firms in Santos has orders from European clien purchase all plantations offered. It is said that planting would be lucrative to the planter in case coffee should fall to six mi (84 cents) per ten kilograms 22·046 pounds). It is now quot nine milreis ($1·26).

It may be assumed that one-third of the coffee trees of the St Sao Paulo are planted in lands of the first quality, one-third in t second quality, and the remainder in land that may be classed third quality. Lands of the first quality produce even up to years, and in some cases beyond, as before stated; lands o second quality produce up to thirty and thirty-five years, and of the third quality up to fifteen and twenty years. All these are virgin soil, never manured, except by decaying matter gro side by side with the coffee tree or in the interstices of the ro trees, the rotation being here, as Professor Derby of the Geolo Survey has said, not, as in Europe and North America, with u crops, but with jungle. The common coffee plant has more dur than the plant called "bourbon." In general, bourbon c produces at an earlier period than ordinary, and the yields are abundant during the first fifteen years, from which time onwar trees suffer much, and production is gradually reduced. This va in lands of the second and third qualities breaks up quicker the common coffee plant.

OUTLOOK FOR COFFEE PRODUCTION.

Mr. Lacerda thinks that the low price of coffee—nine milrei ten kilograms, or 54 milreis per bag of 132 pounds, equal to United States gold per bag, or 5·7 cents per pound—during th year will cause a cessation of planting new trees. There is re to doubt this, because in the favoured coffee districts of Ri

Preto, etc., planting is constantly going on and on a large scale although low prices and low exchange are, of course, deterrents. The whole matter of prices lies in the question whether or not there is an excess of coffee production in the world. It seems that the production of the world has outrun its consumption, and, unless new markets are opened and its use in old ones extended by propaganda, as has been attempted in Russia, and by the abolition of the heavy import dues that burden it in most European States where it finds acceptance, thus making more easy its extended use, the price will decline still further and stay down.

The case appears to be similar to the question of wheat prices. There are vast quantities of land in various parts of the world where both staples may be grown; no particular aptitude is required in the labourers who produce either; the existence of steamship lines plying to every corner of the earth, equalizing freight rates and bringing the remotest sections within easy distance of central distributing markets; the ramification of railways through the producing countries, the cheapening in rates of money, the diminution of returns expected on capital invested, and the use of machinery and intelligent labour in place of the hand labour of slaves—all tender cost of production and of reaching a market much less than was dreamed of a few years ago. Yet Mr. Lacerda contends that coffee should and may be expected to sell again at £4 ($19·47) per bag, instead of £1-10*s* ($7·30) as at present; and there is a feeling in Santos that all people who do not so think are in some way inimical to the industry.—*American Grocer.*

PLANTING IN THE WEST INDIES.

State Aid.

The new agricultural department to be established in the West Indies will do what it can to improve the cultivation of the cane when only cane can be profitably grown, and to promote the development of a hundred other resources which undoubtedly exist, but for one reason and another have hitherto been largely neglected. To do this the House of Commons has voted a grant of £17,000 a year, which Dr. Morris, of Kew, will administer; and a further £10,000 a year to subsidise a special line of steamers for trading amongst the islands. The new scheme, then, is the direct outcome of the Commisssion which Mr. Chamberlain sent out to investigate the condition of our oldest colonies, and the man who is appointed to work it out sails in a few weeks to begin his arduous duties. Dr. Morris was recently interviewed by a representative of the *Daily News*, and he expressed every confidence in the results which will follow in a few years' time. It is not to bolster up the sugar, but the developement of industries which the infinite prodigality of Nature has made possible, that is the main object of the mission. In the first place, Dr. Morris will establish his headquarters at Barbadoes. From this convenient base he will be able to journey from one island to the other with the least delay, forming as they do a chain, the component parts of which are divided by intervals of sea varying from twenty to 100 miles across. The duties which the department will set itself to perform will be as follows:—1. To supervise and extend the work of the present botanic stations 2. To start industrial schools for training boys in agricultural pursuits. 3. To encourage the theoretical (and to some slight extent the practical) teaching of agriculture in elementry schools. 4. To promote the teaching of scientific agriculture in colleges and schools. 5. To organise horticultural shows and exhibitions of implements and machinery suitable for cultivating and curing tropical products. 6. To prepare bulletins, leaflets, and other literature on subjects suitable for cultivation in the West Indies. Botanic stations are already in existence on a good many islands. It is proposed to extend the work which they are at present doing. They are to devote themselves in a systematic manner to the work of introducing, propagating, and distributing all the promising economic plants of the tropics; they are to initiate the experimental cultivation of new or little known plants, and assist in the efforts made in the larger colonies to secure improved varieties of the sugar cane. They are to act as centres for diffusing accurate information, and as training institutions for the practical teaching of tropical agriculture; also as the headquarters from which agricultural instructors could be sent to give lectures and demonstrations bearing upon the selection of land for tropical economic plants, their suitable cultivation and the best methods for curing and packing the produce.

Blacks as well as whites are to participate in the benefits which may arise from the work of the new department. It will be the business of Dr. Morris's instructors to help them to help themselves. They will be taught how to get the most out of their patches of ground; they will be told what produce it is best fitted for; seeds and plants will be given or sold to them. This will all be a slow business, and Dr. Morris says plainly that the experiment must take ten years before we shall see its full result. Dr. Morris gave some figures showing the number of plants distributed in Dominica (for example) during six years:—

1891	... 9,000 plants.	1894	... 30,000 plants.
1892	... 17,000 „	1895	... 36,000 „
1893	... 22,000 „	1896	... 42,000 „

These are, of course, *all* economic plants. The great demand has been for Liberian coffee, of which over 75,000 plants have been sent out. The others were chiefly limes, cacao, oranges, kola, nutmegs, and vanilla. The cost of a cacao plant in a pot is a farthing, of coffee plants less than a farthing, whilst nutmegs cost a penny. The distribution of seeds was also large, no less than 2,233 cacao-pods of good varieties, capable of yielding 44,660 plants, having been sent out to local planters in three years. At present the most flourishing industry is the production of lime juice. And yet fifty years ago it exported 6,000,000 pounds of coffee in one year. These are suggestive figures. To-day the people are emigrating to Cayenne and Venezuela, and those who remain are in immediate need of assistance. The working of the Government's scheme is well illustrated by Dr. Morris's plan for dealing with it when he reaches the islands. Dominica, he thinks, may be saved by establishing at once a trade in bananas and other fruit with New York. One of the great difficulties which has hitherto stood in the way of the small cultivator has been the absence of markets. It is to help him to ship his produce, fruit, or whatever it may be, the moment it is ready that the subsidy for the establishment of a special line of coasting steamers has been granted. The following is a list of West Indian products which economic Botanical Departments have introduced within a hundred years:—Ginger, nutmeg, clove, black pepper, guinea grass, sago palm, Bourbon cane, coffee, mango, logwood, cinnamon, bamboo, camphor tree, orange, lime, citron, yam, cacao, shaddock, lemon, and ever so many more.

THE CRISIS IN TEA.

The *I.P.G.* has the following:—

Tea has had a number of ups and downs since it was first started in India, but we very much doubt if it has ever had to face such a crisis as the present season is likely to produce. To many it may appear as if this was alarmist vaporing, but a reference to the averages realised by gardens at the weekly auctions must be bitter food for reflection, to say the least. At one time it was thought extremely economical working if tea could be turned out locally at 5 annas per pound; and, indeed, that is cheap working for the Brahmaputra Valley still; but when we mentioned 5 annas we meant it to include all Districts—Dooars, Terai, Darjeeling, Cachar, Sylhet and Assam; or we might better define the latter three by the Surma and Brahmaputra Valleys. One district works cheaply, the next one moderately, another one expensively, so that we think a fair average to strike might possibly be 5 annas per pound. Now in the case of gardens that sell in Calcutta, we have to add Calcutta charges; and in the case of others, not only Calcutta but London charges; and this adds, say, 25 per cent. for those selling locally; and, say, 30 per cent. for those who send their teas to London; so that to cover expenses alone, the crop would require to realise 6¼ annas for Calcutta-sold teas and 6½ annas for London ones.

Turning to the Annual Report on Tea Culture by the Assam Government for 1897, we find that the crops for that year realised—Surma Valley teas an average of 5 annas 11 pies per pound, and the Brahmaputra 7 annas 8 pies. of course, in this report there is no account of the Dooars teas, but judging from the place that Dooars and the Terai generally hold in Messrs. Watson, Sibthorp and Company's valuable weekly comparative tables, there is no reason to suppose (in fact the reverse) that the average of those two district teas was higher than that of the Surma Valley, so that we may for all purposes put down the average of the various districts—the Terai, Dooars, Cachar and Sylhet—as 5 annas 11 pies; or, for simplicity, 6 annas; whilst if we give Darjeeling one and-a-half annas over Assam, we think the comparison would be about fair, *i.e.*:—

Assam	...	...	... 7 annas 8 pies.
Darjeeling	...	...	... 9 „ 3 „
Cachar and Sylhet	...		... 6 „
Dooars and Terai	...		... 6 „

Thus we say that even with last year's prices, the margin or profit in the case of the Dooars, Sylhet, Cachar and Terai gardens is very small, and this is fully borne out by the printed reports of many of the companies of these districts, and what is it likely to be with the prices ruling in 1898? Have our agents and planters yet brought themselves to face the grim facts? The market this year is, we should say, quite an anna worse than last year, and that means an average price of 5 annas. To convince our readers we might arrive at the results here foreshadowed in another way. The average yield put down in the official paper referred to above is:—

Brahmaputra Valley	...	388lb. per acre,
Surma Valley	...	435 „ „
For the whole province	...	408 „ „

which is just over 5 maunds per acre, or, if turned into rupees, Rs.137-8-0 per acre for the Surma Valley and Rs.157-8-0 for the Brahmaputra. In this calculation, of course, we have taken into consideration the fall of one anna per pound in price this year.

Now it is a pretty well-known axiom that bushes will not yield unless liberal cultivation is given, more especially in the poorer soils of the Surma Valley, so that it is impossible to economise in this direction; and given this ordinary cultivation, we do not think we are erring on the side of extravagance if we put local expenditure on gardens in the Surma Valley at Rs.110 per acre, and in the Brahmaputra we require to enhance that to Rs.125. We are not very sure if there are many gardens that work to the above figures. That it can be done is instanced by more than one company's published accounts, and those who cannot do it will have to make room for those who can; but this is beside the question at present, although we may revert to it at some future date. Deducting then Rs.110 from the result of tea sold in the Surma Valley, we find a balance of Rs.27-8-0 left per acre to meet Calcutta, or Calcutta and London, charges, as the case may be; and, in the case of the Brahmaputra Valley, a balance of the same.

In our preliminary examination we said that 25 to 30 per cent. was considered a fair calculation for the item, and this is exactly what is left in the case of both Valleys, but what is the shareholder to get? With regard to the Dooars, Terai and Darjeeling, the conditions are so different that we cannot well compare them with these Assam tea-producing districts. The labour question is quite on a different footing. In the case of the Dooars, the average pay of coolies is so much higher that probably the increased yield is swallowed up in meeting this item, while the same may be said of the Terai. In Darjeeling the yield is very much smaller, and the labour conditions so different, that comparison is hardly possible, although we believe the results will work out pretty much the same. We have purposely kept our figures of expenditure very low, and have, we think, erred on the side of caution, but let us hope we are wrong and have exaggerated these; for in this case there might be a bone to throw to the poor shareholder, although an extremely small one. Meantime, let us glance through the weekly sales and see how many figure in the four-anna column. As shown above, this is bound to leave a heavy loss behind it. We do not wish to take too pessimistic a view of tea as an industry, but it is at present in the throes of a crisis that will shake it to its foundation, and it behoves those interested to try and put their houses in order. Economy must be enforced, both in Calcutta and in the districts generally, and there must be no sentimental feeling allowed to stop the process. The days of rupee or even eight anna averages are gone never to return we are afraid, and the only thing to do is to look round and see where economy can be introduced without sacrificing efficiency. We propose to consider this aspect of the question in another article.

DISEASES OF THE COFFEE PLANT.

THE following is the *Madras Mail's* review of the Committee Proceedings of the U.P.A.S.I. on the subject of Leaf Disease:—

When reporting at some length, last month, the proceedings of the Annual Meeting of the U.P.A.S.I., we were compelled to con our remarks to what had passed in open meeting. Every y however, the chief interest of these meetings centres in the discussi that are held in Committee. Of a loose and somewhat infor character, they are extremely difficult to report with accuracy, the fact that two or three speakers occasionally express their se ments at one time detracts nothing from the value of remarks emanate from various speakers, representing at times opinions widely apart as the districts in which these speakers pursue th ordinary occupation as planters. At the meeting held last mo very interesting discussions on coffee leaf disease, scale pests, employment of an Agricultural Chemist took place in Commit A copy of the Report of these proceedings has now been placed our disposal, and we feel sure that our readers will be interested a brief review. On the subject of the employment of one or m Agricultural Chemists in Southern India our opinions were expres quite recently, and as the U.P.A.S.I. is in accord with them, main consideration may now be given to leaf disease and scale pe It will be seen from the epitome of the planters' remarks that purpose to give in the sequel, that these two matters were in sev instances bracketed together. We may remark that the discuss sprang from a speech by Mr. J. A. Harris, in open meeting. report of this and of the conclusion arrived at after discussion Committee has already appeared in our columns, so our pres remarks will hinge almost entirely on what was said during p ceedings in Committee.

Mr. John Cameron, Superintendent of Government Gardens Mysore, was present to give the planters the benefit of his experie and experiments, and the earlier Committee proceedings took form of an examination of this gentleman, questions being asked various planters and promptly replied to by Mr. Cameron. In course of this examination side lights were thrown on Mr. Broo Mockett's experiments in hybridisation in Mysore. Mr. Came urges hybridisation very strongly. He thinks about six years wo have to elapse before the results of experiments could be re known, and he was interested to learn how much progress already been made by Mr. Brooke-Mockett and how systematic that gentleman had proceeded. We gather from the remarks different speakers that the object of hybridisation is to strengt the constitution of plants so as to enable them to resist dise Expressed in another way, it is to improve the strain and the se In yet another way we may say that the object is to give "n blood" to the plants: always with a view to strengthening th not merely for the purpose of increasing or improving the yield, so as to develop their powers of resistance to disease. In course of his remarks Mr. Cameron expressed the belief not me that the strain of coffee seed now used has deteriorated, but t "any kind of cultivation that goes on for a very long period with change must gradually deteriorate; and *a time will come w sterility will set in.*" The words we italicise are of very gr significance. True, coffee has been under cultivation in India many years, and whatever deterioration there has been has not to sterility. Still, if there is even a remote danger of this, plant will assuredly realise the importance of improving the strain. question was asked by Mr. Parton:—"Can you increase fertility careful cultivation?" The answer was, "Yes." But the greater advantage to be derived from hybridisation was thus pressed by Mr. Cameron:—"You can increase fertility by a car selection of the seed, choosing large and heavy beans; but t alone will not do sufficient good. Selection comes a good lower than hybridisation as a means of improving your crops." conclusion arrived at was that planters should study and prac hybridisation, but that in the meantime they should select heaviest, largest and finest seed, and should go in for high cult tion so as to make the most of existing strains until such time hybridisation may result in the establishment of new and m valuable types.

The advantages of hybridisation are not a matter of speculati They have been proved over and over again with coffee, and scie has established the soundness of the general creed. But the resu of amateurs' experiments are, naturally, varied. Mr. Hockin had experience in Wynaad, and has learnt not to trust entirely appearances. After having Liberian nurseries for several ye without a hybrid resulting, he suddenly discovered some. T grew rapidly. They were pictures of health and strength. "La canoe-shaped beans" promised great things, and Mr. Hockin c cluded that Liberian was the father and Arabica the mother-pla

, the plants raised from these seeds got leaf-disease as badly or e than ordinary Arabica, and turned out of no value. From Mr. Hockin concludes that the vigour to resist leaf-disease only igs to hybrids, of which Liberian is the mother-plant. This is point that should be settled by prolonged, systematic experi-. Throughout all such experiments, too, planters must bear ily in mind Mr. Cameron's warning that in seeking the better may find the worse. In trying to get hybrids indiscriminately, aid, "you may get all sorts of rubbish that will do your estates harm than good if they are allowed to propagate; and this be prevented at all hazards." There is apparently another also. Mr. H. O. Newport alluded to the tendency of Libe- to be more largely attacked by scale pests. Mr. Graham erson stated that Mr. Brooke-Mockett's hybrids were free from ; but it remains for experiments to determine whether this is a lt of hybridisation or merely an immunity due to local or atic conditions, or to specially careful cultivation.

appears to be beyond question that Liberian requires high vation, ample shade and plenty of moisture. The conditions of vation of Arabica are different. Under ordinary circumstances the two plants flower at different times, so that cross-fertilisa- cannot be managed. Special arrangements must be made, efore, wherever hybridisation is attempted, and in particular, and vigilance must be exercised to see that deterioration of n does not result from the very measure adopted for its improve-. There is no reason why experiments should be confined to rian and Arabica. It was certainly argued at the meeting red to that Liberian alone is a distinct species and that Mocha Jamaica and South American sorts are all from Arabica stock. there are such great divergences of type established during the se of many years by different climatic and other influences that e is no reason why hybrids from plants grown from the finest aica seed, for instance, and the finest Coorg or Mysore or aroy seed, should not be tried. The subject is one of the greatest ble interest, and solid practical advantages may be anticipated the attention that planters are now giving it.

TEA PRUNING.

WRITING from Northern India, "1874" contributes an resting addition to the recent discussion on tea-pruning. take the following excerpt from his remarks :—

y idea is that tea is cut down for the benefit of a few seasons, e expense of the general good of the estate, and that the less re the treatment of tea bushes, the better they will repay the given them.

have seen today an admirable illustration of my theory. An old has got one straight stem, about ¾ of an inch in diameter; it is t from the ground to the height of 2 feet, about 2 feet it shows prunings. The growth on this stem is fully 18 inches since the pruning. The growth on the rest of the bush is barely 12 inches e same time. I have got only this *one* straight stem because ve not as yet systematically cut out old wood—the old stems on bush have all been pruned several times and have probably been down twice, but they are still too good to sacrifice. Not that I onvinced of what was only a theory, but has been proved by rience I will cut out *some* wood from each bush at each pruning. k forward for the letter referred to, and I shall be able to judge ther the "other treatment" will suit my garden.

found this place a mass of gnarled stems; I fancy that about er cent. are straight and clean now (which *I* have allowed to), and within five years I hope to have *all* the stems straight and t up to the yielding point. During these five years I have to ease the yield, to keep pace with a falling market, or make much tea of the same amount. The question is, shall I do this more y by cutting down 1/5th of the estate yearly, or by my present od of preserving the yielding surface and removing the least l wood from each bush. This point is worthy of one of your lar letters, by which you get the opinion of many practical men. ers of this sort will do us more good than Chemical exports.

e second letter which I find in your *Tropical Agriculturist* of ust, 1898, by one "Willing to Try," shows me that I have set thinking, and thinking also will do more for us than "Experts." his letter my system is said to be "New," but it is not new. I all the ideas from the Tea Cyclopædia of 1881. I have published not "*a new system*," but my experience of, say, four years of a common-sense system. Take for instance one sentence on page 88 of the Cyclopædia: "We must never forget that the severity of a surgical operation is, except perhaps in the most desperate cases, always proportionate to the stamina of the patient. Similarly when contemplating how bushes are to be pruned, we must never forget to proportion the severity of the cutting to the condition of the bushes and the richness or poverty of the soil."

This hit my fancy, and I said that I would try. I found bushes which were rapidly becoming pensioners. I gave the old things a quiet time, more cultivation, no cutting down, and really the effect is *very* good. You can cut down a plot of tea on good land and perhaps increase the yield, *but* in my opinion that plot will never again give the same average yield from year to year.

I did not intend to offer advice to men who have good tea bushes and good soil, but still I think that the best tea treated as I suggest from the beginning, and supplied with labour sufficient to take all the leaf produced, would not stop short of 1,600lb. per acre.

My garden yields 350lb. of good tea per annum per acre. If it had been treated from the first on my present system, it would give now fully 800lb. per acre of the same leaf. Some of the bushes are splendid, and yield even now at rather more than this rate. With all the bushes equally good, I would have 90 per cent. of the possible "plucking area;" now I have barely 50 per cent. of the ground covered by leaf. The good yield would have encouraged better cultivation and probably manuring; in fact, this Company would have been made fully four times its present value. And the reason is that each man who worked it worked *for the season*, and not for the welfare of the estate. And I also believe that this is the reason why cutting down has become *universal*, so much so that it is hard to find a single instance of a tea estate that has not been cut down several times.

I may be utterly wrong, and perhaps the universal practice is the right one, and perhaps I myself may find in course of time that cutting down *is* necessary, but I have *no* doubt myself that I am right, and for this reason I believe that my experience will prove useful to many men, particularly to those who are taking charge of old gardens and who contemplate cutting down as the only remedy to renew the yield of the bushes. Cut down the whole show if you can afford to give it a rest and let it grow again before you pluck it, so that the following year you can prune the bushes to two or three feet, and after that never cut down again. If you can't afford to wait for new bushes, then cut out a percentage of the worst wood yearly, and let the new wood growing up from below be pruned as high as possible so as to give the greatest possible surface to the bush. Here is another hint from my old friend "For each well-developed new stem cut out the worst or least productive stem. In this way a bush may be renewed in a year or two instead of butchered in five minutes"; and another: "It may be taken as a general rule that the higher the class of plant, *i.e.*, the nearer it approaches indigenous (and the furthest from China), the more sparing one must be with the pruning knife. I trust that no one will accuse me of suggesting that my system of pruning will give 1,600lb. of tea per acre from an average garden and with average labour for plucking.

The following will be a useful

TABLE OF THE LABOUR REQUIRED FOR PLUCKING.

8 months for plucking = 240 days.

Per acre.			1	2	3	
Tea.	Leaf.	Pluckings.	cooly.	coolies.	coolies.	
400	1,600	24	34	17	11½	coarse tea.
800	3,200	24	68	34	22⅓	coarse tea.
1,600	6,400	24	136	68	45⅓	coarse tea.
400	1,600	48	17	8½	5⅔	finest tea.
800	3,200	48	34	17	10½	finest tea.
1,600	6,400	48	68	34	29⅓	finest tea.

Referring to the above, it will be seen that given one cooly per acre, who can pluck 34lb. of leaf at intervals of ten days, the acre will yield 400lb. of coarse tea. Also that with plucking at intervals of five days, one cooly per acre on an average of 17lb. of leaf per cooly will give a yield of 400lb. of *fine tea*. It would require a good acre to yield every five days, but such tea is not at all uncommon. But when you come to the 1,600lb. per acre, it is seen that at intervals of ten days (*i.e.*, for coarse tea) one cooly would have to pluck 168lb. of leaf. Two coolies plucking 68lb. each would do and be practicable off a very fine plot of tea. But to get 1,600lb. of *fine tea* per acre would require at least 2½ coolies per acre as an average, *i.e.*, at some seasons the plot would yield no more than 20lb. per cooly, and during

the rushes it would give 40 to 50lb. per cooly. You must have the best of bushes, and the best of coolies, and lots of them.

To conclude, I may state that this system of pruning is of special value against the effects of drought. The bad effects of hard cutting are apparent according to the severity of the droughts. In the Dooars, a bush can be collar-pruned and be a bush again in a few years, but it seems to me such a waste of everything to spoil a good plucking surface instead of preserving it intact and using sensible methods.

I hope soon to see a letter advocating the periodical cutting down of tea bushes.

Between the two opposite systems we shall all gain some good lessons—and be guided chiefly by our circumstances. But at any rate more of us will *know* what we are doing and not be ruled by convention.

COFFEE IN SOUTH SYLHET.

CEYLON has abandoned King Coffee and sworn allegiance to Green Tea, but South Sylhet is coquetting with the King after giving the green a fair trial. The South Sylhet correspondent of the *Planter* writes:—

I have never had any practical experience in coffee growing, that is, I have never had any experience under a practical coffee grower, and have been treating the plant exactly as I would treat any other similar fruiting tree. This treatment, I find to be, in the main, the same as that recommended by Coorg. The description of the Coorg climate is very similar to what I would describe that of South Sylhet. Same kind of spring, monsoon, and north-east showers during September and October. The two principal differences are that we, on the average, get very nearly double his rainfall, and the dry months in Coorg seem to be very much better than we get them here. It is Coorg seed that my plants are from, and, curiously enough, when I sent a sample to Messrs. Binny and Company, of Madras, their manager at Bangalore reported that the sample was more like the Mysore type than Coorg, round berry, good colour, but silver skin persistent. I suppose the "but" meant that the silver skin being persistent was an objection. He valued the sample as being equal in value to that of Wynaad coffee.

LONGEVITY OF COFFEE.

A letter in front of me from a planting friend says that I might enquire if it has ever been definitely ascertained if coffee, given a suitable climate, will not grow and fruit for an indefinite number of years, if intelligently treated, at even a low elevation than the lowest mentioned by Coorg—800 feet? The writer goes on to say that he has bushes six years of age, and that they have fruited heavily every year for the last three years, and are loaded with berries this year. He has not many bushes, only a few in his compound, but these are quite sufficient to keep the bungalow supplied with a decidedly better quality of coffee than he can buy. He has top dressed them with well rotted manure twice during the years they have been fruiting. I have known bushes considerabl than six years of age growing well and fruit yearly, but as tioned in a former letter, they were in the form of standard the long bare stem or had been allowed to grow much as th a mind, with dozens of suckers, each striving against the ot the leadership. Perhaps a borer insect would come along its eggs on two or three of the would-be main stems, stoppin progress and allowing the others to push ahead. After the eg hatched and the borer had done its work a puff of wind would the affected branch or branches over, where they were allo remain as clear evidence to everyone that coffee would neve South Sylhet. There is yet another system which has bee with a row of bushes in a bungalow compound. After being themselves for some years, they were getting too jungly and bl out the air from the bungalow, so the manager put a coupl pruning coolies on to cut them down, the same as they wer with the tea. As far as health is concerned the last time I sa bushes they were looking all that could be desired. They stoo three or four feet high, and would measure about eight feet th but simply one tangled mass of wood. I have heard it said few bushes in a compound will do very well, but that if gr quantity it would never thrive. Now what I want to know score of coffee bushes will do well and fruit well for a doze planted together in a compound, why will a hundred acres no well, if treated properly, planted in a field? It has been sa coffee has been very much overdone as well as tea. This said of most things nowadays, but I am informed by a Londo man that there is a far greater margin to work upon wit than there is with tea. Moreover, I am further informed coffee can be grown in South Sylhet to anything that will co Wynaad coffee in quality, there is not the slightest fear of it successful venture commercially. The coffee of Brazil is means the best coffee which is put on the London marke matter of fact some of the Brazil coffees were the very wo on the market, and sometimes hardly saleable,—and these were grown where it cost the growers more than twelve ti amount for their labour that it would cost a South Sylhet And, even at that the labour was no better for the work than would be; as a matter of fact, not so good as the better class jungly coolies, for which the Brazil growers would only be to ed to exchange their present labour force if they had the oppo I have been told that Arabian coffee will not flourish below a elevation, but I have never been told the reason why. I ha asked, and as a rule the answer has been, "Well, all coffee are at a high elevation." Or perhaps, the answer may be va being "Well, so and so says so." Is the coffee-plant (Ara alpine or a semi-alpine plant to start with? Coffea Tetrandra a native of Sylhet, Chittagong, and the whole eastern bo Bengal.

VARIETIES OF THE BERRY.

Coffea Bengalensis is similar in appearance to Arabica, indigenous to the north-eastern frontier, chiefly about Sylhe thence brought many years ago to Calcutta, where for some

OAKLANDS BUTTER,

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The Dairy is situated on a Coffee Estate at Yelehanka, far removed from human habitation unhealthy surroundings. Has a large stock of superior Imported Cattle. It is under the imm control of Europeans, and is a model of perfect cleanliness.

The Butter is guaranteed to be absolutely pure. It is packed in ½ and 1 lb. air-tight tins.

We shall be glad to register your name for a bi-weekly, weekly or fortnightly consignme we do with our numerous other regular customers. The Butter sent out is packed a day previous date of despatch and can safely be kept any reasonable length of time (a fortnight at least) withou deterioration of quality.

THE BUTTER IS SENT BY RAIL AT HALF THE PARCEL RATE.

Sole Agents: ROYAL EMPORIU

[w.—3-9-98—t.f.o.] BANGALORE.

s much cultivated under the idea that it was the real coffee of abia, but it was found to be of inferior quality and not so produce as the latter variety.

Coffea Pedunculata is a native of the Moluccas, Coffea Angustiia is a native of Pigeon Island in the Malay Archipelago. Coffea berica is a native of West Africa and so is Coffea Stenophylla. ffea Arabica is described as a native of Arabica, but it originally supposed to have hailed from Abyssinia to which country it is ligenous. But, although for some years I have given this plant nsiderable attention, I cannot find it anywhere described as being ative of any particular altitude. If anything the botanical desptions would lead one to the conclusion that it was a native of a instead of a high elevation.

UNSUITABILITY OF SYLHET TO COFFEE.

I have found great difficulty in getting any reliable and definite ason why coffee will not succeed in Sylhet, but any number of ople tell me that it will not do so, at the same time supplementing eir statement by such an expression as "At the same time I must nfess that I know nothing at all about it." Dr. (now Sir George) ng told me that he would not like to give a definite opinion, alough he had doubts of such a thorough equatorial plant succeedg so far north. That was an expression of opinion, but was by no eans satisfactory or definite. Another authority told me that uth Sylhet was by no means too far north, that we were just on e outside of the Tropic of Cancer, and being so far north fully mpensated for our want of elevation which was found to be necesy nearer the equator; and thought our climate highly suitable for ffee cultivation, equal, if not superior, to the Mysore coffee-growing tricts. Such or some of the opinion I have had, and I will be inested in Coorg's answer to my planting friend's question above.

DAMAGE FROM MOISTURE.

I noticed in a former Coorg letter that the writer mentions about young coffee supplies, which I take to be young plants planted t to fill vacancies, getting clogged up the stem with earth during heavy rain owing to the drip from the shade trees, and that this ght to be removed immediately, because if left to get dry and rd, the tender bark of the young plant was apt to get damaged en removing it. We have been having a wet spell for a few weeks here and all my young plants got clogged up the same way to even ove the *janum* leaves (catyledons); but, when I put on people to ke this earth off, I found that the young plants had completely ed it with a mass of young white fibrous rootless, which had rung out from the stems of the young plants. When I saw this I d the coolies to fork all round, and level the surrounding soil up the top of the earth on the stems of the plants. This could all e more easily be done owing to the young plants in most cases ing in a slight depression, as very large holes were made and led with the top soil, and this soil, after planting, had sunk a tle. Although young coffee plants do not seem to grow so fast as ung tea plants, I think they are (in their young state at least) far ore tenacious of life.

A TRICKY COOLY.

One day about a fortnight ago, when walking through and amining the work of some coolies who were weeding and forking und the young plants, I noticed a plant which somehow had not e same appearance as the others, but, if I had been asked where e difference lay, I could not have told, as the plant had the pearance of being all right and looking as healthy as its neighbours. The earth had just been stirred up round about it. I stooped and ught it by the top when it came away in my hand without any sistance. Upon examination I found that the cooly, when stirring the soil, had cut the plant through a little under the surface with e dao by carelessly stirring too near the plant. To hide the fault had simply stuck the inch or so of stem, which was left on the ant below the *janum* leaves, into the soil, so that the plant had the pearance, for the time, of being all right. I knew that this was very rare occurrence and it was too small a matter to get one's mp up about, so I just stuck it in as it was again and for the time rgot all about it. The plant was in a conspicuous place where I s passing three or four times daily, and where the coolies were ntinually going and coming to and from their work. I noticed at the plant kept fresh and did not flag much, but as the weather s continually dull and cool I did not think much of that until a ek or more had passed, when, upon examining it closely, I found at it had thrown out nearly a dozen of rootlets from about the ils of the *janum* leaves, whose spongioles were penetrating the il in all directions.

LADY BIRDS.

THE following is a report of the discussion that took place in Committee of the U.P.A.S.I. during the Annual Meeting last month :—

Mr. H. G. PARSONS :—I should like to ask Mr. Newport what his opinion is about this scheme. Some expert has said, I believe, that we are proceeding on dangerous lines. What are your views with regard to these remarks ?

Mr. H. O. NEWPORT :—I think Mr. Parsons is asking about Professor Blandford's statement. I have replied to that in the last paragraph or two of my report. I would like to read it, because I think it was an entirely harsh criticism, and I hardly think Professor Blandford had all the facts of our scheme before him when he wrote those remarks. (Mr. Newport here read the last few paragraphs of his Report.)

Mr. H. G. PARSONS :—Therefore the inference drawn by Professor Blandford was altogether wrong ?

Mr. H. O. NEWPORT :—I do not think he understood that I was bringing them out on ice, because in his letter he mentions that we would have to bring them out living on scale pests. That would have made the experiment distinctly dangerous.

Mr. J. W. HOCKIN :—Are they not bringing lady-birds to Ceylon in Wardian cases ?

Mr. H. O. NEWPORT :—Yes, but I do not know what has been the result. I would, therefore, suggest that we should wait and see whether the result of this method of importing has been satisfactory.

The CHAIRMAN :—I may mention that the Secretary has already written to Mr. Green, and asked to be informed as to the result as soon as this information is available.

Mr. E. G. WINDLE :—I would like to ask Mr. Newport what he has to say to a criticism which appeared in the *Madras Mail* to the effect that the lady-birds were not killed on board ship, as would appear from a perusal of his Report, but that the failure was due to a want of knowledge in thawing them out.

Mr. H. O. NEWPORT :—The article referred to originally appeared in *Planting Opinion*. My explanation with regard to that is, that I am not sufficient of an entomologist to say. The insects looked as if they ought to come out alive, but I could get no signs of life out of them. It may possibly have been that my inexperience and ignorance in not being able to than them out alive was the cause of the failure.

Mr. E. G. WINDLE :—Could not an entomologist have given us an idea on that point ?

Mr. H. O. NEWPORT :—I do not think an entomologist could have helped us unless——

Mr. J. W. HOCKIN :—Had they been thawed out in Australia ?

Mr. H. O. NEWPORT :—Yes, but they had not been on ice for such a long time. When they were thawed out the result was satisfactory. I knew what had to be done and followed that, but I had no experience on the subject. I set the insects out in the shade and allowed the temperature slowly to rise.

Mr. J. W. HOCKIN:—Could you not have found out from Professor Koebele how to thaw them out ?

Mr. H. O. NEWPORT:—I could, if I had seen him personally. But I had only his Report, and I could find nothing on the subject in it.

Mr. W. H. SPROTT :—Could not the Secretary write to him and ask him for any information that he could give us ?

Mr. H. O. NEWPORT :—Yes, certainly, on this point as well as on any other point.

The CHAIRMAN :—I would like to ask Mr. Windle and Mr. Newport if they have had any attacks this year badly.

Mr. H. O. NEWPORT :—Yes, we have been attacked this year very badly.

Mr. E. G. WINDLE :—We have had the green bug very badly; but not what the Lower Pulneys are suffering from.

Mr. H. G. PARSONS :—Are we to understand that it was owing to the action of the Captain of the steamer that you were not allowed to see the insects ?

Mr. H. O. NEWPORT :—I could not have seen them in any case in sending the insects in this manner. The New South Wales and Californian planters, I understand, made a special arrangement with the shipping company that carried their insects. They had a specially constructed small chamber built on the side of the cold chamber, which was accessible from outside. They paid £17 or so for the rental of this small space, and in this way they could watch the temperature as well as the cases without opening the refrigerator door. Once the refrigerator doors are closed, the Engineer will not open it until the ship arrives at its port of destination. It was not so much my not being able to get at the case that I complained about, as that the case was allowed to get wet and damp. As I said in my report, this must have been due to hot air having been allowed to get at the case which must have had a bad effect on the insects. If I had been able to see it, this bad effect might have been avoided. I insisted that the case was to be kept dry ; but it was not kept dry.

Mr. H. G. PARSONS :—Then the question of a rise in the temperature is one of the difficulties you had to contend with ?

Mr. H. O. NEWPORT :—Yes.

Mr. J. W. HOCKIN (referring to the mounted specimens) :—Which is the best sort ?

Mr. H. O. NEWPORT :—*Rhizobius ventralis* is a very good sort. It was the kind sent to California. *Cryptolæmus montrouzerii* is another sort that has done very good work. On the left hand top corner is *Orcus Australasia*. These were the three varieties I brought out, and I may mention that Professor Blandford thought the *Orcus* variety might do good. Mr. Tryon pointed them out to me, and suggested that I might bring them over. There are other varieties there, some good and some bad. These are not all animal feeders, some being vegetable feeders. I had to collect all sorts and bring them to Mr. Tryon to identify. He gave me their names and showed me how to identify the different varieties that I would need. Among other interesting things there you will find in one corner of the case the *larvæ* cases of a certain moth which feeds on scale pests. It is not unlike the English caddis worm larvæ. It forms its case of the shell of the dead scale.

The CHAIRMAN :—What suggestions have you to make as to future action ?

Mr. H. O. NEWPORT :—I trust the Association will not let the matter drop because of a failure at the commencement. The first consignment sent from Queensland to Hawaii was unsuccessful ; but subsequent consignments turned out well. I would suggest that the Association before taking any further action should collect all the information possible on the matter. We might ask through the Government for Professor Blandford's suggestions as to future action, especially as he has criticised our present action.

The CHAIRMAN :—I may mention that the Secretary has written to Mr. Thiselton Dyer and Professor Blandford for any suggestion they may have to make for thawing out the lady-birds.

Mr. H. O. NEWPORT :—I would suggest also that we should collect whatever information we can from Mr. Green, and also the entomologist at the Calcutta Museum.

The CHAIRMAN here read a letter received from Mr. Green, of Ceylon.

Mr. G. R. OLIVER :—What has become of the local lady-bird ?

Mr. H. O. NEWPORT :—It is slightly increasing, and is doing excellent work. I may say that the block of coffee on which I first noticed this lady-bird has had less scale on it during the last two years than any other block of coffee on the estate. They don't increase fast, because they lay so few eggs and have many natural enemies.

Mr. R. GOMPERTZ :—I should like to hear from Mr. New his opinion as to the feasibility of getting over eggs Australia.

Mr. H. O. NEWPORT :—That would be an excellent idea doubt ; because eggs could be transported with much less I would point out, however, that it would take a year or eigh months of study and work before it could be possible to get t The eggs are so minute that you could not find them. would have to collect the lady-birds, keep them on plants scale pests on them, and let them go through the whole co of their lives. You would then have to examine minutely leaves of the plants themselves to collect the eggs. Finally, would have to collect such an enormous quantity of eggs at time that the possibility of the scheme seems out of questio

Mr. R. GOMPERTZ :—But I suppose a person interested in s ing the eggs would do all that himself.

Mr. H. O. NEWPORT :—He might do it or he might not d If he were a breeder of lady-birds he might do it, but it w take an enormous amount of time and trouble, and would oc the energies of one man altogether. As far as the Wardian go, I understand that the lady-birds in these cases are a and if they are alive, they have to be fed on living scale-p This being the case, Professor Blandford's remarks apply to method rather than to our method as a means of bringing w scale-pests into India.

Mr. R. GOMPERTZ :—You might get rid of the scale-pests be you arrive in India.

Mr. H. O. NEWPORT :—The lady-birds might die before got used to the new food.

The CHAIRMAN :—What do you think the next move ought to

Mr. H. O. NEWPORT :—I have already suggested that we sh get what evidence we can by writing to the different source information ; but we should take no further action unti have heard from all possible quarters.

The CHAIRMAN :—You think we should do nothing at present to take steps to get all the information we can. We have that already.

Mr. H. O. NEWPORT :—We should get even more informa and *advice*, and, as soon as we have sufficient, we should ac it. Before going into open meeting, I should like to ask for di tions as to what is to be done with the apparatus. The appar that is on the table I shall hand over to the Secretary. Ther however, other apparatus, such as the brine-chest that I sh like to know how to dispose of. It is, of course, the propert the Association. Then again I have made reference in report to an ice-chest which I had to leave in Australia. chest cost originally £4-5-0, and I left it to be sold as soo the summer came on. That also belongs to the Association, I have suggested in my report that when I receive the money this chest I should remit it to the Secretary.

Mr. W. L. EDMISTON :—I think, and I fancy from what I seen, that we have in this country lady-birds that might s our purpose, and although Mr. Newport has told us tha does not consider himself sufficiently an expert in the ma I think if his services were made available to us for a s time we might well spend some money in enquiring into subject of lady-birds inimical to scale-pests in this cou before we spend any more money abroad.

At this stage Mr. Newport proposed the following resolution That this Association do collect all possible information o subject of the importation of lady-birds from Professor Bland and others, and in time await the result of Mr. Green's exp ments in Ceylon before taking steps in the importation of fur consignments, and that, as soon as possible, a supply of *Cocc lidæ* be imported by the most approved method and experime with in South India.

The proposition was seconded by Mr. J. W. Hockin.

Mr. E. G. WINDLE :—May I suggest the inclusion of the words f such be considered the best means of destroying scale-pests ?"

Mr. H. O. NEWPORT :—I have no objection to the inclusion of e words.

The CHAIRMAN :—It seems to me the resolution is complete itself.

Mr. W. L. EDMISTON :—I cannot help thinking that it is a pity waste money on importation from foreign countries, while ere is still a chance of finding lady-birds in our own country. know the services of a skilled entomlogist are not available; t Mr. Newport is the nearest approach to a skilled entomologist have, and he has already told us that in the event of our requir- him to make further enquiries he is prepared to give his vices. I wish to move the following amendment :—"That hough the services of a thoroughly qualified entomologist is t at present available, the services of the best man at our mediate disposal be forthwith employed as a temporary easure to study the indigenous varieties of lady-birds until such ne as the employment of a thoroughly qualified man is avail- le." I do not think the experiment will cost us much money.

Mr. H. M. KNIGHT seconded the amendment.

The CHAIRMAN :—It seems to be Mr. Edmiston's opinion that will save money by the arrangement he proposes. It seems me we are more likely to save money by importing lady-birds om outside. If Mr. Edmiston's amendment is carried, we will ve to spend money to ascertain if lady-birds, which may or may t exist, are forthcoming. It seems to me we will be incurring eater expenditure than under the former scheme. I would ggest that you might effect a compromise by the following solution :—"That this Association do collect all possible infor- ation on the subject of the importation of lady-birds from rofessor Blandford and others, and that in the meantime await e result of Mr. Green's experiments before taking any further eps as to importation, and that all further action should be left the Committee."

Mr. H. O. NEWPORT :—That is different to Mr. Edmiston's nendment.

Mr. W. L. EDMISTON .—I don't want to stifle information : the ore we have the better it is for us. I only want to have enqui- es made as to what we have in this country before we go to the pense of getting them from outside. Our experience has ot been very satisfactory.

The CHAIRMAN :—Mr. Edmiston, I don't think your motion can ome as an amendment. I think we will vote on the original roposition, and then we will vote on yours as a separate resolu- on.

Mr. W. L. EDMISTON :—You can't do that, because you say othing further shall be done.

General Meeting was resumed, when Mr. Newport's resolution, econded by Mr. J. W. Hockin, was put to the vote and carried.

Mr. W. L. EDMISTON's Resolution was then put as a separate notion ; but after a very brief discussion in Committee as to the uestion of funds, Mr. Edmiston withdrew the motion, as he nderstood that the funds at the disposal of the Association were aised for the introduction of foreign lady-birds, and there would, herefore, be no money for his scheme.

MARKET REPORT.

COFFEE.

Messrs. Wm. Jas. and Hy. Thompson state in their Report of the Colonial Markets for the Week ending August 31*st*, 1898 :—Bank rate 2½%. Bombay Exchange closes at 1s 3$\frac{3}{32}$d. Brazil Exchange 7$\frac{17}{32}$d. Rupee paper 3½ % 62⅛. Silver 27⅝d per oz.

The market has shewn more firmness during the past week than for ome time previously, and the increased supply has met a good demand t about 1s to 2s per cwt. dearer for pale and medium kinds, whilst colory Columbian has sold with spirited competition at a further advance. East India has also sold at steady prices.

Brazil markets unchanged.

Daily receipts averaged 15,400 bags in Rio, and 27,800 bags in Santos.

Futures after having advanced about 2s 6d per cwt., in the early part of the week, have fluctuated, and although a large business has been done, prices shew a decline of 3d to 6d per cwt., below the highest point, viz. :—Good average Santos in Havre, September delivery, fcs. 39.25, in Hamburg pf. 32$\frac{1}{4}$, and No. 7 low ordinary Rio in New York $5.65.

To-day's London official quotations are :—

	Sept.	Oct.	Dec.	Mar., '99.	May.	July.	Sept.
SANTOS ...	31/3	31/6	32/-	33/-	33/3	33/9	34/-

We quote :—

Ceylon, mid. to good mid.	101/	@108/	
Do. small to low mid.	79/	„ 99/	
East India, mid. to good mid...	70/	„ 92/	
Do. small to low mid.	58/	„ 72/	
Guatemala, mid. to fine...	66/	„ 98/	
Do. good ord. to low mid...	50/	„ 64/	
Salvador, good ord. foxy greenish...	38/	„ 42/	
Costa Rica, mid. to fine...	69/	@104/	
Do. ord. to low middling.	37/	„ 65/	
Jamaica, good to fine ord.	32/	„ 48/	
Do. greenish to fine colory...	65/	„ 120/	
African ...	26/	„ 29/	
Columbian, ordinary ...	36/	„ 43/	
Do. good ord. to low mid...	42/	„ 63/	
Do. mid. to fine ..	64/	„ 98/	

Receipts in Brazil to 31st August compare as follows with previous years :—

	1898-99. Bags.	1897-98. Bags.	1896-97. Bags.
RIO	627,000	990,000	692,000
SANTOS	1,250,000	1,652,000	1,148,000
	1,877,000	2,642,000	1,840,000

London advices of 2nd inst. state :—

Plantation Ceylon sold under the hammer at again full prices. The small quantity of East India was eagerly competed for and a decided advance was paid for Coorg ; privately sales of Neilgherry have been made at good prices. For Costa Rica and Central American descriptions generally, the demand has been steadily maintained for all desirable qualities, but ordinary kinds have been dull of sale and a portion had to be withdrawn. "Futures" have been dull and prices have given way owing to large receipts, closing as follows :—

London	...Santos	...December delivery ...	31s. 6d.
New York	...No. 7 Rio ...	„ „ ...	5.85 cents.
Hamburg	...Santos ...	„ „ ...	32¼ pf.
Havre	...Santos ...	„ „ ...	38¾ francs.
Holland	...Good ordinary Java ...	...	37¼ cents.

Imports Deliveries and Stock of Coffee in London are as follows :—

		Stock.		Imports.	
		1898.	1897.	1898.	1897.
West India ...	tons	522	413	1,585	802
Ceylon ...	„	142	145	268	383
East India ...	„	2,196	2,159	5,536	5,047
Mocha ...	„	527	429	615	485
Brazil ...	„	3,539	2,006	2,770	1,456
Other Foreign ...	„	12,897	7,045	25,828	19,820
Total ...	„	19,823	12,197	36,602	27,993

		Home Consumption.		Export.	
		1898.	1897.	1898.	1897.
West India ...	tons	255	239	1,147	505
Ceylon ...	„	105	120	131	241
East India ...	„	1,793	1,615	2,653	2,059
Mocha ...	„	477	357	110	157
Brazil ...	„	675	837	1,527	1,848
Other Foreign ...	„	6,271	6,420	11,326	9,448
Total ...	„	9,576	9,588	16,894	14,258

The preceding figures exhibit—

In the imports an increase this year of	8,609	tons.
Home consumption a decrease of	12	„
Export an increase of ...	2,536	„
Stock an increase of ...	7,626	„

Auctions this week have passed off as under :—

CEYLON.—*Plantation.*—13 casks 6 tierces 13 barrels 3 bags mostly sold, smalls 70s to 97s, middling and good middling 106s to 106s 6d, fine middling and bold 111s to 113s, pea-berry 113s 6d.

EAST INDIA.—468 bags sold :—*Coorg*, triage 39s to 41s, smalls 45s 6d to 49s, low middling to middling 77s 6d to 81s, faded and dull bold 88s to 99s, pea-berry 105s 6d. *Neilgherry*, triage 42s, smalls 47s 6d to 49s, low middling gray 57s 6d to 66s 6d, boldish 87s, pea-berry 89s 6d. *Wynaad*, triage and small 37s to 47s, low middling faded 56s.

EAST INDIA, *Liberian.*—29 bags mostly sold, triage 17s 6d to 19s, bold brown 26s 6d.

JAMAICA.—91 barrels 20 bags bought in.

COSTA RICA.—359 bags mostly sold, ordinary pale country-damaged 35s to 39s, good ordinary dull palish 48s, fine to fine fine ordinary greenish 54s to 58s 6d, pea-berry 59s to 59s 6d.

GUATEMALA.—Of 1,258 bags offered about 450 bags sold, smalls 32s 6d; London-cleaned, triage 29s to 33s 6d, smalls 36s to 40s, fine ordinary greenish 54s, middling 69s 6d, pea-berry 74s 6d to 89s.

SALVADOR.—Of 600 bags catalogued 400 bags sold, foxy pale 40s to 42s, pea-berry 45s 6d; London-cleaned, smalls 38s 6d to 42s, middling colory 70s, good middling 79s 6d, pea-berry 70s.

MEXICAN.—735 bags partly sold, fine ordinary faded pale 47s to 49s, colory 74s.

VENEZUELAN.—30 bags pale sold at 46s.

VERA PAZ.—580 bags offered and 100 bags sold, pea-berry 70s; London-cleaned, smalls 32s to 39s, good colory 87s 6d, pea-berry 92s.

NICARAGUA.—761 bags partly sold, triage 24s. low mixed black 33s 6d, ordinary foxy pale 36s 6d to 39s, good ordinary 40s to 40 6d, pea-berry 46s.

HONDURAS.—184 bags sold, dull foxy pale 36s to 39s 6d, ordinary dull pale 40s 6d to 41s.

COLUMBIAN.—4,775 bags offered and about 3,700 bags sold, small pale 35s to 38s, good ordinary pale 43s to 44s 6d, fine ordinary mottled pale Antiquia 50s to 53s, bold ditto 71s 6d, fine fine ordinary to low middling pale greenish 56s to 63s 6d, good middling to good 78s 6d to 86s, pea-berry 65s; London-cleaned, smalls 30s to 55s, damaged and dull soft mixed red 48s to 59s, low middling to middling 61s to 71s, good middling to good colory 75s to 86s 6d, good colory bold 96s to 97s 6d, fine bold 101s 6d, pea-berry 62s to 90s 6d.

BOLIVIAN.—58 bags London-cleaned, partly sold, mixed small 33s 6d.

BRAZIL.—450 bags Santos. bought in.

At auctions to-day only 10 casks 5 tierces 8 barrels Plantation Ceylon, 83 bags Porto Rico, 304 bags Columbian, 401 bags Guatemala, 292 bags Mexican were offered. A flat market to-day and Guatemala sold cheaper. Prices close 1s per cwt. lower on the week.

PEPPER.

Black.—Since our last the market has been quiet, and business was done at the commencement of the week at 5d per lb. for Singapore Oct.-Dec. shipment—a reduction of $\frac{1}{16}$d—but more recently a firmer feeling has been manifest and the decline recovered. The sales total up 150 tons as under:—

Singapore on the spot (basis fair)	$4\frac{3}{4}$d to —d
do Oct.-Dec. shipment	5d to $5\frac{3}{32}$d

The shipments of Black Pepper for the month of August compare as follows:—

	1st half.		2nd half.	
	1898.	1897.	1898.	1897.
U.K.—Sing.....340	340	250	100	50
,, Peng.....*nil*		*nil*	20	*nil*
Continent	100	140	360	80
United States	225	20	250	*nil*
Total tons ...	665	410	730	130

At public sale on the 31st ult. only 4 bags good clean Singapore were offered and these were bought in at $4\frac{3}{4}$d per lb.

White.—At the commencement of the week a very quiet feeling was manifest, and business was done for arrival at a decline of $\frac{1}{4}$d per lb.; but an improved tone has more recently been experienced and the decline has been partially made good. 200 tons embrace the sales this week, viz.:—

Singapore on the spot (basis fair)	$8\frac{1}{4}$d to $8\frac{3}{8}$d
do Aug.-Oct. shipment	$8\frac{1}{4}$d
do Oct.-Dec. do	$8\frac{1}{2}$d to $8\frac{3}{4}$d
Penang on the spot (basis fair)	$7\frac{3}{8}$d
do Sept.-Nov. shipment	$7\frac{11}{16}$d
do Oct.-Dec. do	$7\frac{13}{16}$d
do Nov.-Jan. do	$7\frac{3}{4}$d to $7\frac{13}{16}$d
do Dec.-Feb. do	$7\frac{7}{8}$d

The shipments of White Pepper for the month of August compare as follows:—

	1st half.		2nd half.	
	1898.	1897.	1898.	1897.
U.K.—Sing.....300	370	60	150	120
,, Peng..... 70		20	110	150
		80	260	270
Continent	50	*nil*	40	30
Total tons ...	420	80	300	300

At auction on Wednesday offerings were restricted to 94 bags 5 cases Singapore and 45 bags Siam, and these retired unsold.

The closing report was:—

Pepper firm. Of Black, no sales reported; $\frac{5}{32}$d. buyers Singapore October-December shipment.

Of White, 50 tons sold, viz., Singapore near at hand at $8\frac{3}{8}$d., and Pe December-January shipment at 7 $\frac{15}{16}$d.

Zanzibar Cloves dull for delivery. 300 bales October-December s ment sold at $4\frac{5}{32}$d. c.i.f. (Rotterdam).

October-December delivery sold at $4\frac{3}{16}$d. and sellers.

GINGER.

Cochin.—A decided lull has followed the activity of the past two w and not much business has been done since our last issue. Buyers naturally utilised the quietness to bring about a lower range of va and have succeeded to the extent, say, of 1s. per cwt. on washed. auctions embraced 88 cases 992 bags, of which 69 cases 280 bags so the room as follows: medium rather roughly cut and scarped 58s. med part boldish, roughly cut and scarped Native, limed 44s. 6d. small and ditto 33s.; bold branchy brown rough Calicut (in cases) 42s. 6d.; brown rough Calicut Sorts 23s. 6d; good medium and small washed Co rough 24s. shrivelled pickings 17s. per cwt.

SULPHATE OF QUININE.

Slow of sale at $9\frac{1}{2}$d B & S or HB from second hands.

TEA.

CHINA.—London advices, dated 2nd September, state:—The pri market has had very few orders to fill for Congous this week, and feeling all round is one of decided lassitude. At public sale the has been very slow and Packlings and new make Congous went in bu favour, other makes exhibiting no change in value.

Since our last 6,559 packages have been brought to the hammer partly sold as follows:—

half-chests new Black leaf Congou partly sold, medium $6\frac{1}{2}$d.
ditto Ditto Siftings sold at $2\frac{3}{4}$d to $3\frac{1}{4}$d.
ditto new Red leaf Congou 5d.
ditto old Ditto Panyong $5\frac{1}{2}$d.
boxes new Pakling Congou 5d to $6\frac{1}{4}$d.
ditto new season's new make Congou $4\frac{3}{4}$d to 6d.
boxes Canton Scented Caper, common to fair $3\frac{7}{8}$d to 5d, mediu good 6d to $8\frac{1}{4}$d.
ditto Scented Orange Pekoe $7\frac{3}{4}$d to $10\frac{1}{2}$d.
half chests and cases Moyune Green Gunpowder, medium to goo to 9d, fine 10d to 1s $0\frac{1}{4}$d; Imperial $6\frac{1}{2}$d; Young Hyson, good me 7d to $7\frac{1}{4}$d, fine Sow Mee 1s to 1s 1d; Hyson good to fine Foong 9d to $10\frac{1}{4}$d.
half-chests Pouchong 7d.

INDIAN.—Public auctions were rather smaller, amounting to 30 packages, compared with 34,300 packages last week and 33,100 pack a year ago.

Not much alteration was apparent, most of the offerings meeting a fair demand. Fine teas again received good attention at fully fo rates, but common and medium sold rather irregularly, with how somewhat more enquiry for all useful parcels. Pekoe Souchongs Pekoes from $5\frac{1}{2}$d to 7d per lb. possessing fair cup show very good v at present, and should go rapidly into consumption.

For 23,600 packages on Garden account $9\frac{1}{4}$d per lb. was obtai contrasted with 10d per lb. for 23,100 packages, and $10\frac{1}{4}$d per lb. 25,600 packages in the two seasons before.

The number of packages printed in August was:—

1898.	1897.	1896.
121,900 pkgs.	100,300 pkgs.	131,400 pkgs.

The London Bonded Warehouse statistics for August are:—

	IMPORTS. August.	DELIVERIES. August.	STOCK. 31st August.
1898 ...	13,351,000 lb.	10,378,000 lb.	28,206,000 lb.
1897 ...	12,480,000 ,,	8,312,000 ,,	25,802,000 ,,
1896 ...	12,649,000 ,,	8,155,000 ,,	22,808,000 ,,

CEYLON.—Sales comprised 29,400 packages, against 29,700 package the 23rd ult., and 26,300 packages in 1897.

The better tone noticed previously continued, and there was b bidding for nearly all descriptions at firm to occasionally better pr though quotations for Broken Pekoes often marked variation.

The average is $7\frac{7}{8}$d per lb. On the Tuesday before it was $7\frac{3}{4}$d pe and also on the 2nd September, 1897.

Messrs. Gow, Wilson and Stanton's Indian, Ceylon, and Java Tea Re dated August 26th, 1898, says:—

QUANTITY BROUGHT TO AUCTION IN LONDON FROM 1ST JUNE TO DATE.

	Indian.	Ceylon.	Java.
1898-1899...	186,261 packages.	311,578 packages.	9,987 packs
18 97-1898...	169,124 ,,	344,662 ,,	11,357

34,983 *pkgs.* INDIAN
30,014 „ CEYLON
1,642 „ JAVA
} Total 66,639 packages were offered in public auction this week.

The total quantity of British Grown Tea sent to North America during the past six months amounted to lb. 6,245,443, against lb. 6,580,336 during the same period of 1897, but there was a heavy import during the first quarter of 1897, caused mainly by an expected advance in the Duty.

INDIAN.

	1898.	1897.	1896.	1895.
1st quarter ...	1,345,816	2,702,578	1,294,054	752,047
2nd „ ...	609,223	435,364	445,244	405,788

CEYLON.

	1898.	1897.	1896.	1895.
1st quarter ...	1,809,283	1,758,365	1,050,884	714,168
2nd „ ...	2,481,121	1,684,029	1,060,553	1,100,572

The second quarter of 1898 shows an encouraging increase in both Indian and Ceylon Tea.

Indian and Ceylon Tea taken in North America from 1st January to 30th June.

INDIAN.

	1898.	1897.	1896.	1895.
Re-exports to U. K. ...	1,106,886	1,175,979	623,317	819,560
Transhipments to U. K. ...	677,017	1,890,940	1,115,981	338,275
Direct Exports *viâ* China ...	54,282	71,023	*Not stated*	*Not stated*
Direct Exports from Calcutta ...	116,854	*Nil.*	*Nil.*	*Nil.*
Total lb. ...	1,955,039	3,137,942	1,739,298	1,157,835

CEYLON.

	1898.	1897.	1896.	1895.
Re-exports to U. K. ...	1,965,295	2,199,930	1,460,044	1,307,406
Transhipments to U. K. ...	876,124	982,759	564,790	383,127
Direct Exports *viâ* China ...	453,021	259,705	86,603	124,207
Direct Exports from Colombo...	995,964	*Nil.*	*Nil.*	*Nil.*
Total lb. ...	4,290,404	3,442,394	2,111,437	1,814,740

Indian. Now that Indian Teas are beginning to arrive in quantity, the week's auctions afford a better test of the actual state of the market, and it is satisfactory to find that Teas with really good quality continue to command high prices with a strong market, viz.:—"Poobong," 2/4¼; "Ass. Fron. T Co. Sookrating," 2/–; "Margaret's Hope," 1/10¼; "Budla Beta" and "Castleton," 1/6¾. Medium and poor liquoring descriptions met with less active demand, and prices were somewhat irregular with a cheaper tendency.

Total Tea sold on Garden Account 1st June to date 1898, 111,305 pkgs. av. 8·66d. 1897, 109,821 pkgs., av. 9·12d.

		1898.	1897.	1896.	1895.
DUST.	(Fair ordinary, dark liquor) ...	3½d	3¾d	4½d	4¼d
FANNINGS.	(Red to brown, strong rough liquor) ...	3¾d	4¼d	5d	4½d
BROKEN TEA.	(Brownish to blackish, strong liquor) ...	6d	6½d	7¼d	6d
PEK. SOUG.	(Blackish greyish, useful liquor).	6¼d	7d	7¾d	7d
PEKOE.	(Greyish to blackish, some tip, useful liquor) ...	7¼d	8¾d	9¾d	8d
PEK. SOUG.	(Blackish greyish, inferior liquor).	5¼d	5¼d	5¼d	5½d
PEKOE.	(Blackish greyish, some tip, inferior liquor) ...	5½d	6d	6d	6d

Ceylon. Although the auction was again comparatively heavy, bidding for all descriptions was animated and the market steady. Teas for price were wanted and sold at rates which were a shade dearer. The better quotations lately ruling for good liquoring Teas were also fully maintained, medium descriptions with poor quality not meeting with such marked attention. Average for week 7·68*d.*, against 7½*d.* same period last year. The following averages may be mentioned:—"Diyanilakelle," 1/1; "Cranley," 1/0¾; "St. Co. St. Leonards" and "Talawakelle," 1/0¼.

Ceylon Tea sold on Garden Account 1st Jan. to date 1898, 762,777 pkgs., av. 7·60d. 1897, 755,273 pkgs., av. 7·61d.

		1898.	1897.	1896.	1895.
PEKOE SOUG.	(Ordinary leaf; fair liquor) ...	6d	6¼d	6¼d	6¾d
PEKOE	(Ordinary leaf, little twist; fair liquor) ...	6¾d	7¼d	7½d	8d
PEKOE SOUG.	(Rather bold leaf; indifferent liquor) ...	5¼d	5d	5¼d	5¾d
PEKOE	(Somewhat bold leaf; indifferent liquor) ...	5¾d	5½d	6d	6½d

Java. The Javas consisted of Teas saved from the recent fire at Hay's Wharf.

Bank Rate 2½ per cent. Exchange on London three months sight:—Calcutta 1/4. Colombo 1/4.

TEA IN AMERICA.

The American Grocer reports under date *New York, August* 10.—The prices obtained at the auction sale last Wednesday indicated a well sustained market. Since then demand has been very light.

New York, August 17.—Since the auction sale invoice trading has been very light, the market ruling steady at prices established at the auction.

PUBLIC SALES OF SOUTH INDIAN TEA.

(AVERAGE FOR ALL INDIA 8·56*d.*) *August* 26*th.*

GARDEN.	Total.	Average.	Broken Org. Pek. or Flowery Pekoe.		Pekoe and Unassorted.		Broken Pekoe.		Pekoe Souchong.		Broken and Souchong.		Fannings, Dust, and Various.	
	Quantity	Price.	Quantity	Price.	Quantity	Price.	Quantity	Price.	Quantity	Price.	Quantity	Price.	Quantity	Price.
Neilgherry ...	**183 p**	**6·53**												
C ...	37 p	7¼	20½c	10½	...	...	...	...	...	...	17	5½	...	...
Brooklands ...	146½c	6¼	58½c	6½	58½c	5½	30½c	7	...	...	...	...	...	...
South Wynaad ...														
Perindotty ...	172 p	5¾	50½c	6⅜8	80	5¼5½	17½c	6¾	25	5	...	...	...	...
Travancore ...	**1,831 p**	**6·06**												
Atchencoil ...	18	6	...	...	10	5½	8	6½	...	...	...	...	...	...
Ashley ...	51	5¼	...	...	31	5	20	5½	...	...	...	...	...	...
Balamore ...	186½c	5½	...	...	111½c	5 5¼	64½c	6¼	...	...	10½c	4¾	1½c	2¾
Cheroot Mallay ...	64½c	5¼	...	...	64½c	5¼	...	...	...	...	...	...	...	...
Corrimony ...	125 p	7½	...	...	74½c	6¼	47½c	10	...	...	2½c	5	2½c	3½
Goatfell ...	150	5¼	...	...	82	5¼	35	5¾	30	4¾	...	...	3	3
Isfield T Co ...	122	5¼	...	...	44	5¼	29	6	48	5	...	...	1	2¾
Riviera ...	40	5	...	...	29	4¾	9	6	...	...	2	4¾	...	...
Seafield ...	120½c	6¼	...	...	80½c	5¾	37½c	7¾	...	...	2½c	5	1½c	3¼
Stagbrook ...	135	6¼	75	6¼7¾	28	6	...	...	18	5¼	...	...	14	5¼
8th Trav Est Ven...	217	6	72	6½7¾	91	5¾6	...	...	34	5¼	...	...	20	3¼4¼
8th Indian T C K K.	221	6½	162	6 7¼	25	5½	...	...	...	...	...	...	34	6¼
Travancore T C P...	246	6¾	...	...	65	5½	156	6¾8¼	25	5¾	...	...	...	...
Vembenard ...	30	6¾	...	...	...	...	30	6¾	...	...	...	...	...	...
W ...	5½c	6¾	...	...	5½c	6¾	...	...	...	...	...	...	...	...
Wallardie ...	101	5½	...	...	35	5½	32	6¼	23	5¼	...	...	11	4¼

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PLANTING OPINION.

A WEEKLY JOURNAL

WRITTEN BY PLANTERS FOR PLANTERS.

OL. III.] MADRAS, SATURDAY, OCTOBER 1, 1898. [No. 39.

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DOMESTIC OCCURRENCE.—The fee for inserting a domestic currence will be *One Rupee* for each insertion, payable in advance.

N. B.—Remittances should be sent to E. C. Duff & Co., Proprietors, Planting Opinion," 16/17, Armenian Street, Madras.

IMPORTANT NOTICE.

The Offices of this paper having now been removed o Madras, all remittances should be made payable to . C. Duff & Co., Proprietors, *Planting Opinion*, 16 and 17, rmenian Street, Madras, who will also attend to all dvertisements, &c.

Letters to the Editor should also be addressed to the adras Office.

SEASON REPORTS.

TO OUR SEASON REPORTERS.

Please post your next reports to reach Madras on Friday, the 7th October, 1898.

Season Reports should be sent to the Printers, Messrs. Addison & Co., direct, and not to *Planting Opinion* Office.

Kadur.

Belur, 27*th Sept.*—*Weather.*—Fine with N.-E. showers in the evening. Very heavy fall at 2-20 on the 26th. *Crops.*—Planting has been going on with Claridge's patent transplanter, which is found to work satisfactorily where the soil is not sandy. *Diseases.*—Black rot has come and gone, and has been followed up by leaf-disease, badly on most estates. *Interesting Items.*—The race meeting at Chickmaglur is on from 26th September to 2nd October. The usual Volunteer Inspection, cricket match and theatricals, kindly got up by the Deputy Commissioner, will take place during the week. *Health.*—Good. *Labour.*—Plentiful.

Kil Kotagiri.

22*nd Sept.*—*Weather.*—Monsoonish, light rain nearly every day. *Plant-diseases.*—Leaf-disease showing up every here and there, but not really bad anywhere. *Clearings.*—This weather suits the new clearings better than the old coffee. We want a couple of weeks fine now to ripen up the crops. Picking has started everywhere now, but not heavily; about the 15th October will bring us into really full swing. *Labour* decreasing, but still plenty for all works. *Health.*—Fair, a few coolies down with fever. *Interesting Item.*—A tiger has killed several cattle and a pony here during the last week.

Mudigere.

South Mysore, 24*th Sept.*—*Weather.*—August was the lightest August on record, but not bright. First fortnight in September was gloomy and rainy, but now we have usual weather for the season, bright sun and occasional rain. We have had over 10 inches, which is quite up to the whole average for September. *Crops.*—On the whole estimates seem to be rising—rather a dangerous tendency at this season, when crop always looks at its best; but as far as I can see, there is better justification for it than usual. *Disease, etc.*—Black rot has been worse than usual owing to the gloomy character of the monsoon, but it is mostly "shuck" trees that have been attacked. There cannot have been much serious loss, or we should not have the general confidence there seems to be

that, in spite of bad blossom showers, fair crops will be picked, though there are only a few bumpers. Leaf-disease, like the poor, is always with us in this month, but it does not appear to be serious anywhere. A few overladen trees have been shaken, and a few bad patches (waterlogged, &c.) look rather bad. Coffee generally, under proper circumstances, looks as well as I have ever seen it. Even supplies which, as a rule, are the bane of a planter's life, from the anxiety they give him, seem to have a wavering inclination to live and grow. Very often there is no wavering at all, for the most paltry excuses they die right away. Although a few have rejected them, basket plants seem to be growing in favour, but it is now generally recognized that they should be planted out very early or very late, either in May or in October or September at the earliest. *Labour Supply* seems to be irregular, but generally sufficient. Petty native planters are straining every nerve to pay their coolies and keep them, but as a rule the sowcar's purse-strings are tightly knotted, and nothing in the way of advances can be extracted. How these men would curse the Government of India if they only knew. The speech of the Mulnaad is free and fluent. When they fail to pay their coolies, there will probably be a rush of more than we can find work for. *Health* is at present good, but Chickmaglur is to be watched for the issue of the cholera we have had from there for two years past. *Grain.*—Prices remain much about the same. Ragi dear, gram very dear, paddy normal. Rather contradictory reports come in about crops this year, so probably they will be irregular, and therefore somewhat short on the whole.

NEW MARKETS FOR TEA.

South India has still a good deal to learn from Ceylon in regard to the opening out of new markets, and the vigorous development of trade with those with which trade has already been begun. In regard to this, the recent proceedings of the "Thirty Committee" in Ceylon contain information that should be noted by South Indian planters, few among whom have taken an active part in even the insufficient attempts made by the Indian Tea Association along similar lines to those followed by the planters of Ceylon. Glancing over these proceedings, we find entries of "Ceylon Tea in America," in Canada, in Russia, in Germany, and so on. Now what communication has South India with these markets? It would be interesting to learn how much tea is shipped from South Indian ports to the United States, Canada, Russia, Germany, France, Belgium, Austria-Hungary, Holland, South Africa and Burma. Our insular neighbours appear to have direct connection with all these countries. Have South Indian planters? If we err in replying to this with a brief negative, some of our friends will no doubt set us right. To the above list we would add Australia. It is not our intention to suggest that *no* South Indian tea is shipped to this market and the others just named; but we wish to emphasize the fact that direct business with these countries is not being pushed. It is equally true, we believe, that planters in these parts are, as a rule, ignorant of the consumption and the requirements of most of the foreign markets now mentioned, whereas Ceylon would seem to have a good deal of valuable information on the subject. In addition to this, Ceylon has representatives hard at work in various parts of the world canvassing for Ceylon Tea. Its virtues are being preached far and wide. Apostles have been sent forth, and no doubt the response comes in the shape of improved demand, which, if it does not always mean an advance in prices, at least checks or prevents the fall that would otherwise follow upon steady increase of production that has been noticeab late years.

As regards the United States, the broad plan of Cey action is sufficiently well known to require little com here. The details of advertisement, etc., are ever var with a view to catch the popular fancy. That real goo been done, is beyond question. In Canada, we believe, a sober method has been followed, but the fruits thereof not yet been revealed to us. Proposals for advert more freely in Russia are now under consideration. Germany, Hagenbeck's Tea-House and Exhibition is ha a gay time, and evidently something has been achieve fair promise has become visible, for the "Thirty Commit has recommended the appropriation of £1,000 to adve ing and pushing Ceylon Tea in Germany, a sp grant of 5,000 lb. Ceylon Tea to be sent to Berlin fo tribution among German requirements, and the prese a special chest to the Kaiser. Besides this, a grant of £50 made some time ago towards advertising Ceylon Tea making it known on the Continent of Europe. In re to Belgium, Holland, and South Africa, the "Thirty mittee" has resolved that £100 be allotted in each case certain firm or individual on their sending accounts vouchers showing an expenditure of £300 sterling copies of newspapers with the advertisements ins therein. That is to say, the Committee is prepare make grants-in aid. Then, too, the Paris Exhibition serve as an advertising opportunity, and the Committ of opinion that Ceylon Tea should be represented at Coolgardie Exhibition of 1899 (The Western Austr International Mining and Industrial Exhibition). Add t the recent bonus of 10 cents a lb. offered in respect to g tea, and it will be seen that Ceylon avails itself of opp nities, seeks them, and even makes them, to push its te all sorts of places. If in the meantime South India no corresponding measures, what must be the inevi result? If it were possible to think that what Ceylon sp on advertising and popularising its tea, South India *into* hers, in the form of improved quality, we might that the latter course would yet prove the more suc ful. But there is no room for this hope.

Naturally, discrimination should be exercised in the s tion of markets whose trade should be sought by a measures. It has been stated recently that the cons tion of tea in France is extremely small. To oust C and substitute Tea would be the work of a lifetime one on which wise men would scarcely spend much m The Germans also take but little tea, the average a consumption per head of population being only one-se of a pound, and the total consumption in 1896 6,000,000 lb. The Russians use less than ½ lb. per but the total amounts to nearly 80,000,000, of which than half still enters the country by trans-frontier r This means that the bulk of the trade is still in the of the Chinese. In 1895 the United States imp 55,000,000 lb. from China, 37,000,000 from Japan, and 865 lb. from all other countries in Asia. Of c the position in Russia and America has changed g since these figures were compiled, but though India Ceylon are gaining ground, China still accounts f largest portion of the trade. Partly owing to changes fiscal policy of the Government, imports into the U

ates jumped up to nearly 113,000,000 lb. in 1897, but the al import of Ceylon and Indian into North America(includ- Canada) during the first half of 1897 was about 6½ milli- s, and in the corresponding half of this year only about millions. In Australia, where the consumption of Tea r head of population is higher even than in the United ngdom, China also has a lead. It would seem, how- er, that America, Australia and Russia offer the best lds for the canvasser who wants quick results. If e planter is prepared to advertise for the benefit of sterity, he may do some good by pushing his teas in France; t in America and Australasia and Russia he may hope reap for himself the fruits of his labour and his expendi- re. It is to these markets, therefore, that we would ecially direct the attention of our readers, and it may be ll to remind them that *combined* effort is essential to ccess in matters of this kind. To advertise a particular and is useless; what is needed is that *Indian* (or we ght perhaps say *South Indian* tea) should be pushed in position to China and Ceylon growths. Price and merit ll in the long run decide the result of the competi- n, as long as all are in the running; but if Ceylon is owed to enter against China alone, India must inevit- ly fail to win, for want of effort. It would be well if uth Indian planters would discuss the question of fertilis- *demand*. Markets need fostering just as plants need trition.

CINCHONA.

In Java.

Java produces about two-thirds of the world's supply of nchona Bark, so that the manner in which her stocks are t on the market is of considerable interest to Cinchona nters in other parts of the world. For years, until about 96, the Java bark was regularly shipped to Holland, and ere sold at public auction. The large Quinine manufactories, stly situated in Germany, were the chief buyers; and for me years they combined to keep Cinchona prices at such ow level that the cultivation of the bark was unprofitable, d the extra gain thus made helped to swell the dividends the manufactories at the expense of the planters. It was, erefore, decided—in 1895 or 1896, we think—to establish a ctory in Java. This was erected at Bandoeng in the eangar Regencies, and the first product was delivered in 96. The quality was said to be first-rate and in all pects equal to the best European brands. During the ly part of 1897 some of the planters were tempted to p their bark to Europe rather than to consign it to the va factory, in view of the important rise which took ce in Europe about the time that the Bandoeng factory s started. It was clear enough that this rise was brought out by buyers for the deliberate purpose of diverting pplies from the Java factory to Europe, and thus nging about the downfall of the former. After a time, nters seemed to see this, and last year they afforded the al factory good support, giving it a considerable share of ir bark for manipulation. It was, therefore, confidently pected that the Bandoeng enterprise would be a success. cent news points, however, to a change of feeling on the rt of the planters, who are again being influenced by the ctics of buyers in Europe, and possibly by a change of system at the factory. The Manager of this undoubtedly aimed at co-operation with planters, but the co-operative principles he introduced did not give general satisfaction. Many planters objected to the condition that the quinine should be consigned to a firm appointed solely by the works, without consulting the planters. The almost general opinion was that the bark should be purchased for cash by the works, instead of paying a fixed manufacturing charge and a percentage of the net proceeds of the quinine. It was also found more profitable to sell the bark at the Amsterdam auctions than to forward it to the Bandoeng works. The result was that not one single planter accepted the terms of the agreement. A revised scheme was then put forward, the Manager of the factory formulating the proposal that three-fourths of the usual annual production of Java bark should be exported to Europe, and the remaining fourth be manufactured in Java for consumption in Asia and Australia. This would have necessitated the extension of the Bandoeng works, as one-fourth of the ordinary yearly production represents double the quantity of quinine that can be manufactured at present at Bandoeng. But this also failed. Further details may be found in an article on "The Java Quinine Factory," published on another page, which reached us after the above was in type.

The object of European manufacturers is considered to be the extinction of Java competition, and they may succeed in this by temporarily increasing the price of the bark, so that the planters will find it more profitable to export their produce, when naturally the Bandoeng works would stand idle and soon come to grief. At the present moment the chances seem to be against the Java factory—a fact that is largely attributable to a want of foresight on the part of Cinchona planters in that island.

In Portuguese Colonies.

The *Suddeutsche Apotheker Zeitung* says that the Portuguese colonies in West Africa which are near the German possessions, the Islands of St. Thomé and Principe, and the larger region of Angola have long been regarded as models of agriculture, and some notes on Cinchona cultivation by H. T. Moller, who was formerly in St. Thomé, are specially noteworthy from this point of view also. It was in 1864, on the recommendation of Weltwitsch, that the first Cinchona plantation was attempted in St. Thome. Unfortunately, the almost valueless *Cinchona Pahudiana* was planted. In the years 1869-71 there were received from the Botanic Gardens at Coimbra several plants of *Cinchona succirubra* and *Cinchona Condaminea* (*C.*

PLANTING BOOKS.

Map of Ceylon Tea Estates Rs.9; colored Rs.10; Mounted in case Rs.14. Map of Ceylon Plantations, Plain Rs.8. Inga Va, Rs.2-8. Areca Palm, As.12. Cocoanut Planter's Manual, Rs.4-10. Ceylon Manual of Chemical Analyses, Rs.3-10. Tobacco Cultivation, Rs.3-10. India Rubber (now in the Press). Coffee Planter's Manual (now in the Press). All about Spices, Rs.3-10. Coffee Tree and its Enemies, Rs.1-8. All about Grub, Rs.1-5. Brazil as a Coffee Country, Rs.1-8. Cardamoms, Re.1. Ceylon Coffee Soils and Manures, Rs.1-9. All about Aloe and Ramie Fibre, Re.1. Estate Buildings, Rs.4-4. Coffee and Chicory, Rs.1-13. Coffee Cultivation in Ceylon, As.5. Tea Cultivation and Manufacture, As.5. Tea Cultivation in Ceylon, As.6. Tea at high elevations in Ceylon, As.3. Manuring of Tea Estates, As.8. To Economise Labour Supply, As.12. Planting, Pruning and Preparation of Tea, As.12. Salt for Agriculture, As.8. Cocoa, Cocaine and its Salt, Rs.2. On the Importance of Lining, As.4.

Apply "Observer Office,"
Colombo.

officinalis), which, however, received but little notice until 1885, when the grave crisis in the coffee trade of these colonies forced public attention to them. Requests were quickly made to Coimbra for plants and seeds of *C. succirubra, C. calisaya, C. Ledgeriana,* and several other species. Extensive plantations were made, large forests being destroyed for the purpose. From 1880 to 1887 about 1,600,000 trees were established in St. Thomé. In the chemical laboratory of the University of Coimbra a large number of analyses of the bark were made, and the bark was, it is said, found to be as rich in alkaloids as the best bark of America, India, Java and Ceylon. For some years several of the largest planters have managed a quinine factory in the neighbourhood of Lissabon, which prepares quinine of a very high standard of purity.

SHADE.

(From a South Mysore Correspondent.)

"Tempora mutantur, nos et mutamur in illis."

This is very true regarding the methods of cultivating coffee, and to no department does it apply more aptly than to shade. It is true that several classes of shade trees remain permanently in favour, such as the Utti (*Ficus glomerata*), Cub Busri (*Ficus tuberculata*), Kurri Busri (*Ficus infectoria*), Goni (*Ficus Mysorensis*), and the Halsin, the Jak (*Artocarpus integrifolia*). Some of these are perhaps too dense where rainfall is heavy; but they all agree excellently with coffee, and the reason that they are not solely resorted to is with regard to the Busris and Goni difficulty of propagation and slowness of growth, and with regard to the Utti the fondness cattle and game show for it. There is the same objection to the Jak, but there are others of a more serious character. It is subject to a parasite which sometimes kills it, and frequently causes the branches to die back, thus depriving the tree of its fine spread. Cattle, too, love the fruit, and when it is ripe and falls to the ground, barbed wire won't keep them out. For these reasons the above-mentioned and other first-class shade trees have not had an entire monopoly, and planters have had recourse to others which they hoped would equally fulfil their requirements. Throughout Mysore during the past twenty years lacs of Howligays (*Acrocarpus flaxinifolius*) and Gana Gurrigays (*Cedrela toona*) have been put down. It was expected that the Howligay when first planted would be permanently suitable, but later on it was found that where rainfall was light it was sufficiently dense, and it was then, being of rapid gro planted with the idea of quickly getting up a covering of cutting it out when better shade had come on. Fur experience proved, however, that there were fatal object to it. It was discovered that the scale which invad not infrequently killed the tree, and that the saccha deposit with which the coffee trees in its vicinity bec covered seriously affected the bud. A more disast effect still has recently been revealed, and this is that dead stump of the Howligay causes a group of coffee t to die around it, to which Mr. Graham Anderson drew at tion at the U.P.A. Meeting. The smaller stumps do appear to have this effect, but those 9″ in diameter larger, or say those ten years old and more, cause de results. The only remedy is digging them out, so t estates where Howligays were planted thickly are put to double expense of cutting them down and uprooting stumps; the consequence is that these trees are now rega in an unfavourable light, and few are planted out. The G Gurrigay, though not so objectionable as the Howliga now scarcely considered first-class shade. It appears t best in land to which it is indigenous. The fact that somewhat late in assuming its new foliage, thus affor little shade in January and February, is a drawback t but a more serious evil is the scale to which it is sub which frequently kills it, and sometimes the coffee und An opinion also prevails that coffee does not crop well, that leaf-disease flourishes, under it. The result is t like the Howligay, it is going out of fashion. Of late y *Grevillea robusta, Albizzia molucana* and *Erythrina l sperma* have been the rage. The idea of putting d either the first or last named would have been ridic ten years ago, and makes one wonder whether Casuar and Gold Mohurs will be the shade of the future! regards Silver Oaks, they have not been tried sufficie long in Mysore to test their efficacy. Their scanty spr necessitating in a climate where dense shade is essent large number to the acre, is against them, and the cont ous leaf-fall, valuable from a manurial point of view, ma found to aggravate leaf-rot. The young sapling is troublesome in the monsoon, as the combined effects of w and rain put it on its beam ends, where it remains t receives attention. I find the best plan is to lop off the foliage from a height of four or five feet right up to top, leaving the extreme end untouched, as it is the we of water it carries that causes it to fall. Treated thus foliage soon grows again, and the tree meanwhile t firmer root.

I hear complaints already that coffee does not thrive u *Albizzias,* which are very rapid growth. They closely re ble a tree known in Mysore as the Whatlucki (this, I beli has not been classified), which is found to be good for sh only in deep soils.

Lastly, I will say a few words of the much-advert *Erythrina lithosperma.* As shade I do not believe it ever be valuable; the fact that it sheds its leaves in hot weather and remains bare for a month or more, that it has such a poor spread condemn it. As regard manurial value, I am not prepared to give an opinion, experiments have been made in this district, and I h results will be forthcoming by and bye. I doubt very m whether *Lithosperma* is superior to *Indica,* and that it

R. J. HARRIS,
6, WORMWOOD STREET,
LONDON, E.C.,
AGENT FOR THE SUPPLY
OF
CHEMICAL MANURES
AND
OTHER PLANTERS' REQUISITES.
QUOTATIONS ON APPLICATION.
[Fy.—28-1-99.]

rnless variety is a myth. The seed which I obtained from encottah produced a delightful mixture of thorny and rnless plants.

t is perfectly true that the times change, and we change h them, and what direction our shade policy will next e I will not be rash enough to predict; but I firmly ieve if we stuck to our old friends, the figs and jaks, we uld be saved a deal of anxiety and a deal of labour and pense.

NOTES.

e Price of Cinchona. The latest telegraphic quotation from England is $\frac{7}{8}d.$ per unit.

den Tips. At the Ceylon Tea Sales on 21st ultimo, a box containing 7lb. Golden ps was sold at Rs.5·80 per lb.

e Colombo Tea Sales. On 21st ultimo the offerings met with fair competition for all good uoring teas. Common and undesirable sorts were ghtly weaker. The catalogue for 28th idem comprised 3,694lb.

Vhat Might Have Been!" Yet again a Ceylon correspondent, writing from Keslanda, comments on the short water-supply and exims: "A fine year for coffee, and those that have taken re of what they had left will reap their reward."

e Calcutta Tea Sales. The average at the Calcutta Tea Sales of 16th ultimo was As.5 pies. About 19,000 packages were to be offered on 23rd em. On the 23rd idem 17,500 packages were sold. A tter tone prevailed, and bidding was brisk for all kinds, cept commonest pekoes. There was again a very strong arket for souchongs for price.

dian Tea Estimates. At a meeting held on 5th ultimo, the General Committee of the Indian a Association gave a revised estimate of the present ason's crop of Indian Teas, showing approximately a tal of 154,167,877lb. as against the original estimate of 8,681,312lb. These are not the figures of the Committee, t are worked out from the incomplete figures they put rward in consequence of various firms and others having led to supply the information required.

uth Wynaad. The correspondent of the *Madras Mail* writes:—"The influx of capital to South Wynaad, more especially of late on the Meppady le, is a source of jubilation to local residents. One large operty having changed hands for tea, it is fervently to be ped that this is the dawning of another day of prosperity r all concerned. The coffee bushes, where first attacked 'leaf rust,' are recovering, and developing fresh liage under the salutary influence of the fine weather hich set in on the 14th instant and which promises to ntinue to the end of the month. Very little coast labour s, comparatively speaking, returned since the 'Onam,' d a great deal of important work is in abeyance, but me few Canarese arrivals are reported."

The London Tea Market. Telegraphing on 21st ultimo, Reuter reported that the tone of the London Tea Market was strong, and that there was a good demand for all kinds at fully previous rates. Messrs. Gow, Wilson and Stanton reported by wire to Colombo on 22nd ultimo that the quality of Ceylon offerings generally was improving, and that good liquoring Broken Pekoes were wanted. The market for poor liquoring sorts was steady, and prices quoted were $6\frac{1}{2}d.$ for fair liquoring Ceylon Pekoe Souchong and $8\frac{1}{4}d.$ average for the week. On the same day Reuter gave $8\frac{7}{8}d.$ (a reduction of $\frac{7}{8}d.$) as the average for Indian Tea, $8\frac{1}{2}d.$ ($\frac{1}{4}$ up) as the average of Ceylon, and stated that out of 22,000 packages of Ceylon offered 21,000 had been sold; while 37,000 Indian had been sold out of 39,000 offered.

India *vs.* Ceylon. Mr. S. Elwood May writes from New York to the *Ceylon Observer* in very indignant strain. He says:—"My idea is to push Ceylon tea in this market against China, Japan, India, *and all* others, and this I have always done. I am not able to see how the planters of Ceylon are benefited when their money is used to push Indian Tea where their own product can be placed. To be frank, some one has been a traitor to the cause. I travelled last season about 6,000 miles after new clients with great success. What happened after that—some one used money to have Bhud, Tiffin and Bungalow thrown out of the many shops I had won over, and had placed in these shops a packet tea marked 'India and Ceylon.' This kind of work has been going on for the last three years."

Coffee in Queensland. Mr. E. Cowley, Manager of the Kamerunga State Nursery at Cairns, Queensland, writes in the *Queensland Agricultural Journal:* "At 6 feet by 6 feet apart an acre will contain 1,201 trees. Allowing 3lb. of clean marketable coffee to each tree, we get 3,603lb. per acre. At the above calculation of about 5lb. of berry to 1lb. of clean coffee, this would mean that 18,015lb. of berry would have to be picked. The cost of the labour for picking at $\frac{1}{2}d.$ per lb. would reach £37-10-7½, and the value of the commercial bean produced £135-2-3, from which we deduct picking expense, leaving £97-11-7½, from which all the above-mentioned items have to be deducted." He then adds the significant warning: "As, however, paper calculations rarely are borne out by practical results, a considerable reduction may doubtless be made on the figures denoting returns."

COFFEE SHADE TREE.

Sun-dried Erythrina Lithosperma loppings, &c., contain per ton:—

61·50	lbs.	Nitrogen.
57·38	„	Potash.
14·92	„	Lime.
13·68	„	Phosphoric Acid.

Seed cured under Messrs. Sutton and Sons' advice.

Orders should be booked early for the 1898-1899 crop of seed from the parent trees of above analysis at Rs.6 per pound containing about 2,000 seeds. *Germination guaranteed.*

Only thornless variety extant, and is not procurable anywhere save from the

MANAGER, ARIENKOW ESTATE,
Shencottah.

Tea Seed. Mr. Acworth's remarks about the falling off in demand for Tea Seed are indorsed by a Cachar correspondent, who thinks that though there will be a failure in the Tea Seed Crop this year, the demand is not likely to exceed the supply. Now, if the failure is in quantity alone, and the quality is good, planters ought certainly not to hold off buying. If the quality of Indian Tea is to be maintained—not to speak of improvement—there must be new seed, and what we may term *foreign* seed used. The advice lately given to Coffee planters by Mr. John Cameron contains a lesson for Tea planters also. They may go back, they may go forward, they *cannot stand still* in regard to this question of quality. The wise will know how to act, and will not be scared by temporary depression into a course that could only tend to eventually intensify that depression.

Mexico. Not only does this country offer a good field for the cultivation of coffee, but cacao, rubber, sugarcane, tobacco, vanilla, cardamoms and ginger are all on the list of products, though some of them apparently grow wild, rather than under cultivation. Vanilla, it is remarked, "might be grown on the shade trees amongst the coffee." [Has this plan been tried in South India?] Mexico seems likely to be boomed as the happy planting ground of the future. Mr. E. O. Darley states:—"The low price of silver has not affected us planters at all to our detriment, for excepting machinery and some tools everything we need is produced in Mexico and we sell our produce for gold. With our Banks declaring annual dividends of from 16 to 20 per cent. and cotton mills from 20 to 55 per cent., and other enterprises equally as good, I hardly think that either the planter or the manufacturer has much to complain of in this country."

Mark Tapley in Ceylon. A Ceylon planter has seen a good many complaints about "hard times," "high exchange," &c., but he wonders how many "thank a far-seeing Providence for these same ills?" "Just fancy," he exclaims, "the thousands of acres that would have been opened up in tea, had not the enterprise received this slight check. A few more million lb. of tea added to our present outturn,—and where would we be? It would have meant greater depression; would it not? Now people will open their eyes and say to themselves: 'Tea is getting over-done; I am going in for cocoanuts or some other product,'—and thus save us all from our greatest enemy—*Over-production.*" There is much to be said for this view of the situation: it is at least a comforting one. But it approaches nearer to Fatalism than to Progress, and Ceylon Tea would hardly prosper if all its votaries were to view matters from the same standpoint as the above writer. It would scarcely surprise us, however, to find that he had himself done a good deal to bring about the over-production he deprecates! Even planters sometimes preach what they do not practise.

Coffee in Costa Rica. An *ex*-Ceylon planter writes to say that there is in Costa Rica magnificent coffee land in an excellent climate where even a sun-hat is unnecessary, and good shooting and fishing. He considers that a young man (who must have at least £3,000 to start with, by the way) could go to work very gradually perhaps with half-a dozen or a dozen labourers and p say 50 acres, that is at 300 trees an acre, 15,000 t which in four years would give him a clear income of to £1,000 a year and go on doing so longer than he requ an income. He adds:—"The Serapiqui Company w deal liberally in selling land, supplying plants, and in curing the coffee. Mr. R. P. Macfarlane said after return:—'If I were a young man again I would not h tate to go off to Costa Rica at once.' Mr. Huntley Th has been the means of two young men already going £3,000 is the least I should recommend a man to go the command of; but of course he does not want it a once, and he must not be afraid of work and of rough it at first. Every coffee plant he puts in with his hands or any other hands will, four years after it is pu bring him in a clear income of a shilling per annum life. Surely it is worth doing where there is no ris climatic danger."

The Nyassaland Coffee Co., Ld. At a general meeting of sh holders held at Colombo on ultimo, a report was adopted sh ing 633 acres under cultivation, 2,843 acres rese Rs.63,742·30 absorbed in developing the Company's perty, and a balance in hand of Rs.28,537·74, which cover the expenditure for the current season. During financial year under review 383 acres were felled, cle and planted, but owing to scarcity of labour and he growth of weeds due to an abnormal rainfall, the clear have not been a success, and will require much supply The scarcity of labour has been occasioned by disturba in the districts from which labour is recruited, but th having now been suppressed and the natives pacified, Superintendent anticipates that he will not experie further difficulty in this direction. A crop of some th or four tons may be secured this year, but it is left to discretion of the Superintendent as to whether it is advis to allow the trees to bear any crop or not. Store buildi and machinery will have to be erected in season 1899-19 but the crop of that season should more than provide these and ordinary working expenditure. Prices of Nya land coffee have been well maintained notwithstanding general fall in price of coffee, but even if no money ha be borrowed by this Company, it will be some three ye before the shareholders can hope for a dividend.

LETTERS TO THE EDITOR.

THE LADY-BIRD.

SIR,—I was rather surprised on reading in *Planting Opin* of September 24th, the ideas regarding lady-birds. Newport states, "as far as the Wardian cases go, I underst that the lady-birds in these cases are alive, and, if they are al they have to be fed on living scale pests."

Now the question is, what is the food of the lady-birds? one day I was talking to a planter from Hawaii about lady-bird and scale, and I remarked that it was not clear the lady-bird was to destroy the scale pest, for one da watched the proceedings of a lady-bird attacking an aphis a pear branch, and the lady-bird took half an hour to disp of one aphis, and there were hundreds on one branch. To my friend from Hawaii replied, "Oh, it is not the lady-bird t eats the scale, but the larvæ of the lady-bird, and when all scale was taken off, they died for want of scale!!"

OLD PLANTE

GENERAL ARTICLES.

THE U.P.A.S.I. SECTION.

[UNDER THE CONTROL OF THE SECRETARY, U.P.A.S.I.]

FROM reports of proceedings of the Indian Tea Associa- in Calcutta, it appears that consideration has been en to letter of 16th August from the Secretary of the ited Planters' Association of Southern India, submitting, the opinion of the Committee, copy of a resolution ssed at their annual General Meeting of 9th idem on the bject of the reduction of the British tea duty, which read follows: That this Association, through its representa- es, Messrs. Sanderson and Mangles, press upon the dian Tea Association in London the urgent necessity for ducing Government to reduce the import duty on tea in eat Britain, and suggest that a strong representation ould be made in conjunction with the Ceylon Tea Associ- on in London. The Secretary was ordered to acknowledge e letter, and inform that Association that the Committee re in accord with the terms of the resolution, and to orm the London Association of the fact.

Certain confidential papers on the above subject from the anters' Association of Ceylon have been circulated to embers of the U.P.A. Committee.

The Book of Proceedings 1898 should be ready within a w days. The price, it may be mentioned, is Rs.2 per copy.

Orders by post-card are coming in, but in some cases the ank left for the number of copies is not filled up. In ery such instance *one* copy will be sent.

LATEST TELEGRAPHIC QUOTATIONS.

	LONDON, 27*th Sept.*
r Silver	... $28\frac{5}{16}d.$
nk of England Rate	... 3 per cent.
ffee —	
Nilgiri, average (B) Size	... 67
Middling Ceylon	... 103
Mysore, average (B) Size	... 75
Stocks	... 20·142
Fortnight's Landing Tons ...	... 1,400
Deliveries	... 1,600
	NEW YORK, 27*th Sept.*
ffee—Fair Rio	... $6\frac{1}{8}$ cents.
ver—commercial bars	... $61\frac{1}{8}$ „

"PLUCKING FINE."

A PLANTER, writing to the *Pioneer* on tea prospects, remarks:— Up to the present year medium leaf would pass muster and pay for manufacture. Now there is so much tea made that medium leaf ll make about an average of 5 annas, which barely pays expenses. nd so for a time those who wish to pay expenses (let alone making profit) *must not* pluck medium leaf. Any tea that will *pay* this ar (of 1898) must be strictly of two leaves and the bud. Admitting is to be true, the bulk of planters will give up all hope of making pay. It was not until I gave up hope myself (some four years o) that I found out the way to make my garden pay. I got sperate, I 'plucked fine,' and I succeeded. But I had to heave erboard my old prejudices, founded (as I said above) on my own perience of twenty years, and the universal custom of the planters."

CEYLON TEA IN AMERICA.

SINCE January 1st, 1898, there has been a large increase in the shipments of Ceylon tea direct to America. From January 1st to July 5th, 1898, the exports were 1,188,530 pounds, against 461,795 pounds for the same time in 1897. This is a very suggestive record, and indicates the growing popularity in this country of machine-made tea. A more remarkable increase is shown by the exports from Ceylon to Russia, which were 1,198,555 pounds this year, against 176,257 pounds last year.

Push and publicity are doing much for the tea planters of Ceylon, and the more vigorous and persistent their campaign, the more gratifying will be their record of direct shipments to America and Russia.—*American Grocer.*

THE CURRENCY QUESTION.

PRICES OF FOODSTUFF.

THE REV. A. ANDREW, of Chingleput, criticises Mr. Acworth's evidence concerning prices of articles that the ryot in India has to pay, and the remark "that in our hills the prices of grain have kept steady, but if you take rice that is sent down to the Coast, the price has risen enormously." Mr. Andrew says:—

I have not the statistics for food-grains for the Planting Districts in Mysore and Travancore, but I have them for the Nilgiris, where there is a very large planting community, and for the other districts of the Madras Presidency. These statistics, which are wholly derived from Government records, do not support Mr. Acworth. Indeed, it is difficult to know precisely what he means by the sentence quoted. The following table shows the price of rice (common sort), indicating the average number of seers of 80 tolas each to the rupee between 1883-84 and 1897-98, for the Nilgiris and the Presidency.

Year.	Average seers per rupee.		Year.	Average seeres per rupee.	
	Nil-giris.	Presi-dency.		Nil-giris.	Presi-dency.
1883-84 ...	12·0	16·0	1891-92 ...	8·3	10·6
1884-85 ...	10·7	13·9	1892-93 ...	8·7	10·7
1885-86 ...	10·8	13·9	1893-94 ...	8·9	12·1
1886-87 ...	11·7	15·2	1894-95 ...	9·5	12·7
1887-88 ...	11·9	15·8	1895-96 ...	9·7	13·2
1888-89 ...	11·2	14·3	1896-97 ...	8·8	11·2
1889-90 ...	10·4	13·1	1897-98 ...	7·8	9·5
1890-91 ...	9·7	12·6			

It will be observed that the price of rice in the Nilgiris has risen considerably during the past 15 years; and the presumption is that a similar rise has taken place in the other South Indian Planting Districts. Comparing the average prices for the Nilgiris in 1883-84 with those of 1897-98, it is found that a rise has taken place to the extent of 56·4 per cent.

Whatever be the experience gained in the other planting districts with reference to the price of rice, it is certain that a great rise has taken place in this commodity in the Nilgiris. During the same period ragi has risen in price in the Nilgiris by 58·6 per cent. It stood at 23 seers to the rupee in 1883-84 and 14·5 seers in 1897-98.

A similar rise in food-grains has taken place in the Madras Presidency. The average price of rice for all the districts was 16 seers to the rupee in 1883-84 and 9·5 seers in 1897-98, showing a rise of 68·4 per cent. But if 1896-97 be taken instead and compared with 1883-84, the rise is 42·8 per cent. Ragi, one of the other important grains, has risen 131 per cent. between 1883-84 and 1897-98, while cumbu and cholum have risen 106 and $124\frac{1}{2}$ per cent., respectively, in the same period.

Referring to the above, another correspondent writes to the *Mail*:— "Mr. Andrew has fallen into a trap for the unwary in taking as a basis of comparison the prices of 1883-84, which was about (I am speaking from memory) the cheapest year of the last quarter century, except in the case of rice, the price of which is partly

controlled by gold prices, and is not at all important to the masses, nor to the plantation coolies. Taking the rates of 1873, with an index number of 100 as a basis (and they are for various reasons a very fair starting point), prices in this Presidency have been much as follows:—

Grains.	1880-81 to 1883-84.	1889-90 to 1893-94.	1894-95.	1895-96.
Rice	... 97	131	123	118
Ragi	... 86	128	116	103
Cholum	... 80	125	114	103
Cumbu	... 86	130	115	103

A comparison of the figures (first column) with those in the last column will show what I mean. As we all know, for the last two years prices have been altogether abnormal."

Just as contradictory are opinions elsewhere, and as for statistics —well, they are as accommodating as usual, and may be quoted to prove either of the two opposition views referred to above.

For instance, "X" recently forwarded the following to *Capital*:—

Now take a typical staple like common rice, and look for a moment at the annual average price in Bengal from 1861 to 1897:—

	Seers sold for Re.1.		Seers sold for Re.1.
1861	... 29·1	1880	... 20·61
1862	... 29·47	1881	... 26·4
1863	... 28·94	1882	... 24·85
1864	... 26·17	1883	... 20·49
1865	... 18·87	1884	... 15·5
1866	... 13·82	1885	... 15·84
1867	... 21·67	1886	... 19·92
1868	... 23·7	1887	... 21·03
1869	... 21·52	1888	... 19·01
1870	... 24·6	1889	... 14·98
1871	... 25·26	1890	... 16·29
1872	... 23·86	1891	... 15·84
1873	... 20·97	1892	... 15·31
1874	... 15·24	1893	... 12·86
1875	... 20·57	1894	... 13·92
1876	... 21·76	1895	... 16·9
1877	... 18·69	1896	... 13·41
1878	... 13·17	1897	... 9·59
1879	... 14·02		

If we take the aggregate for these decennial periods as the index, they work out as follows:—

1861-1870.	1871-1880.	1881-1890.
237·86	... 194·15	... 194·41

but if we take the aggregate for the last ten years, *i.e.*, from 1888—1897, we get the extraordinary low index figure of 148·11.

Now turn back to our exchange. We find the aggregates of the decennial periods are as follows:—

1861-1870.	1871-1880.	1881-1890.
243 41·48	... 216 23·32	... 185 45·96

but if we take the aggregate for the past ten years, *i.e.*, from 1888-1897, we get the extraordinary low index figure of 156 7·64. Arrange the statement in this way—

	Aggregate Decennial Index. 1861-1870.	Aggregate Decennial Index. 1871-1880.	Aggregate Decennial Index. 1881-1890.	Aggregate Decennial Index. 1888-1897.
Price of Rice ...	237·86	194·15	194·41	148·11
Rate of Exchange ...	243 41·48	215 23·32	185 45·96	156 7·64

Just think for a moment what this means. One rupee exchanged every year for the first ten years would have produced £1-0-4; one rupee exchanged every year for the last ten years would have produced 13s. One rupee spent in rice every year for the first ten years would have purchased nearly 238 seers of rice; one rupee spent in rice for the last ten years would have purchased 148 seers of rice, and yet writers of weight like Mr. T. Lloyd come forward and airily assert that local prices in India have not risen. The inclusion of 1897 in my calculations cannot be objected to on the score of being a famine year, for there have been frightful famines in the other years that are included. At the same time it is worth noting that in 1897 a rupee would purchase far less rice in Bengal than in any former year.

For comparison with the above, Mr. Giles F. Walker (Ce gives the following:—

PRICES OF RICE ON ST. JOHN DEL REY ESTATE, BOGAWANTALAW FROM 1866 TO 1898.

(*Supplied from* 1866 *to* 1893 *to the Currency Commission; after tha request for "Ferguson's Directory."*)

Year.	Highest Monthly Price per Bushel.	Lowest Monthly Price.	Aver Price f Ye
	s. d.	s. d.	s.
1866	25 0	9 9	11
1867	17 0	7 0	10
1868	8 6	7 3	7
1869	8 3	7 9	7
1870	7 9	7 9	7
1871	7 11	7 8	7
	R. c.	R. c.	R.
1872	4 40	4 13	4
1873	4 25	3 88	4
1874	4 50	4 25	4
1875	...	...	..
1876	4 58	4 45	4
1877	6 83	5 6	5
1878	5 80	5 12	5
1879	5 50	4 75	5
1880	4 62	3 80	4
1881	3 90	3 37	3
1882	3 75	3 27	3
1883	3 70	3 37	3
1884	3 88	3 70	3
1885	4 00	3 75	3
1886	3 80	3 75	3
1887	3 70	3 35	3
1888	3 60	3 45	3
1889	4 25	3 65	3
1890	4 00	3 85	3
1891	3 82	3 82	3
1892	4 40	3 80	4
1893	4 40	4 20	4
1894	...	...	4
1895	...	...	3
1896	...	...	3
1897	...	...	4
1898*	...	...	4

* Six months.

The connection between Exchange and prices is, it will be from the above, by no means clear, and statistics can be giv *upport* Mr. Acworth's evidence as well as to contradict it.

THE INDIAN TEA ASSOCIATION.

THE following is an abstract of part of the proceedings of a me of the General Committee of the Indian Tea Association held 5th September. There were present: Messrs. H. S. A President; A. F. Bruce, D.A. Campbell, F. H. E. Lamb, T. Trail W. Warrington.

Mr. Campbell proposed, and Mr. Bruce seconded, that Mr. Anderson be elected Chairman for the ensuing year.

Mr. Bruce proposed, and Mr. Traill seconded, that Mr. Ash elected Vice-Chairman for the ensuing year.

Both resolutions were carried unanimously.

Letters of the 13th, 22nd and 29th July and 5th August fro Secretary, Indian Tea Association, London, next came up. Committee considered the question of the local consumption referred to in the London Secretary's letter of 5th August, a suggestion put forward by a member of the London Associatio tea should be packed in small 2-oz. tins and disseminated thr

MILLIE & REDMOND, late P. THOMPSON & CO., *Ootacamund, Engineers and Contractors.*

PEIRCE, LESLIE & CO.

CALICUT, COCHIN, TELLICHERRY, MANGALORE.

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OF
ESTATE REQUISITES.

.B.—We are prepared to indent home for any and all kinds of estate requirements not kept in stock or enumerated in this list.

TATE TOOLS—		Rs.	A.	P.
Round Eye Felling Axes (steel), 4 lbs. weight	per doz. ...	20	4	0
Do. do. do. 2½ „ „ „	...	15	0	0
Pick Axes, 6½ lbs. (well steeled) ... ... „	...	16	8	0
Bill Hooks, (Barcutties) 12″ blade, bright steel „	...	18	0	0
Do. Kentish, with back, steel, 2¼ lbs. wt. „	...	16	0	0
Bushel Measures (Galvanized), Imperial Stnd. ...each	...	15	0	0
Buckets (Galvanized), various sizes ... from per doz.	...	16	8	0
Watering Cans, (Galvanized) "Nonsuch," 2 gals. each...		4	0	0
Do. do. do. 2½ „	...	4	8	0
Steel Digging Forks. *Steel strapped all along handle.*				
4 & 3 pronged per doz.	Rs. 39-0-0 &	33	0	0
Grass Knives, socket handle, steel ...	per doz. ...	12	12	0
Hammers, 6, 7, & 8 lbs.	per lb. ...	0	6	0
Handles, Pickaxe, 3 ft. long (English Ash) ...	each ...	0	12	0
Do. 30″ long 3¾″ circ. (do) ...	„ ...	0	6	0
Do. 16″ „ 3″ „ (do) ...	„ ...	0	4	0
Do. Digging Fork	„ ...	0	14	0
Lining Ropes, abt. 250 feet	„ ...	8	12	0
Mamooties, Steel 10″x 8″ or 9″x 7″ abt. 4 lbs. wt.	per doz. ...	12	12	0
Do. Iron 10½ x 8½ or 9½ x 8 abt. 4 lbs. wt.	„ ...	7	8	0
Quintanies, Steel 15″ × 6,″ 5½ lbs. weight ...	„ ...	18	0	0
Do. 9½″ x 5,″ 3¼ „ „ ...	„ ...	14	4	0
Manure Pans, (Galvd.) 7″ deep x 18″ top x 10″ bottom	„ ...	23	4	0
Pitting Bars (Alavangoes), well-steeled points, 3″ spade end, 45″ long, 9 lbs. wt.	„ ...	16	8	0
Pruning Knives, English make, best steel, 4″ blade	„ ...	9	0	0
Do. Saws, do. do. 14″	„ ...	18	0	0
Seamless Bags (for coffee transport to coast) 42″ x 20″	„ ...	9	12	0
Shovels, round nose, T handle	„ ...	12	12	0
Tea Transplanting Spades, steel, sharp edge ...	each ...	2	8	0
Tea Sieves, brass No. 6, 8, 9, 10, 12 mesh	„ ...	6	0	0
Do. do. bottoms do.	„ ...	3	8	0

A REQUISITES—FOR PACKING.

CHESTS—MADE TO ORDER. *Deld. at Mettapollium, Palghat, Calicut.*

Full Chests 24 x 19 x 19 (outside) ½ in. planks	each ...	1	1	0
Half do 16 x 16 x 16 („) do	„ ...	0	13	3
Quarter do 14 x 12 x 10 („) ⅜ do	„ ...	0	9	3

Any other dimensions at proportionate prices.

LEAD—BEST INCORRODIBLE. *Any other sizes obtained to order.*

127 sheets 37″ x 22″	per case of 2 cwt.	32	0	0
or 218 „ 25″ x 19″	„ ...	32	0	0
„ { 40 „ 84″ x 22″ for sides; 80 „ 21″ x 16″ „ tops and bottoms }	„ ...	30	0	0
„ { 72 „ 65″ x 19″ „ sides; 144 „ 14″ x 14″ „ tops and bottoms }	„ ...	30	0	0
Solder (Sticks) per case of 1 cwt. Rs. 50, or per lb. ...		0	8	0
Soldering Fluid	per bottle ...	2	0	0
Hoop Steel ½″ (abt. 3,000 feet to the cwt.)...	per cwt. ...	15	0	0

COFFEE PULPERS—*To order only. One month required for delivery.*
For Arabica. For Liberian.
Agents for:—MESSRS. WALKER SONS & CO., LD. Rs. A. P.
Price list and illustrated catalogue sent on application.

Copper Punched Cylinder cover 4′ x 2′ ...	each ...	25	0	0
Do. Disc cover	„ ...	9	0	0
Do. do. for Liberian ...	„ ...	12	8	0

COIR MATTING—In rolls of 60 feet long x 3 feet wide.

Estate, Double, (coffee drying, etc.) Nos. 1 and 2, Rs. 2-8 &		2	4	0
Ordinary Bungalow Twill		7	0	0
Fine Machine-made Yarn		12	8	0
Superior Yarn		15	0	0

Coloured stripes to order. Samples sent on application.

IRON—GALVANIZED.
Continuous Iron. For roofing, etc.
In rolls of 100 ft. x 2 ft. 28 G. (per ft., 7 as.) per roll ...
Corrugated Iron sheets 24 G. 2 ft. wide (English)
Lengths 5, 6, 7, 8, 9, 10 ft. } per cwt.... 10 0 0
Approx. weight 14, 16, 19, 22, 24, 27 lbs. }

Iron Ridging, 6 ft. x 6 inch lap. ...	per length ...	1	8	0
Bolts and Nuts, ¼″ x ¾″	per gross ...	1	14	0
Rivets (*abt. 64 to the lb.*)	per lb. ...	0	4	6
Washers, Iron (*abt. 70 to the lb.*)	„ ...	0	4	6
Do. Lead (*abt. 50 to the lb.*)	„ ...	0	6	0
Screws 2½ in. (*abt. 28 to the lb.*)	„ ...	0	7	0
Lead headed nails 2½ in. (*abt. 20 to the lb.*)	„ ...	0	6	0

NAILS—

Cut Rose Nails 1 in. (*abt. 500 to the lb.*) ...	per lb. ...	0	3	0
Do. 2½ in. („ 90 „) ...	„ ...	0	2	3

Wire Nails, French.

℔ 1 cwt. keg	1″	1½″	2″	2½″	3″	4″
Rs.	13/12	11/8	11/	10/8	10/	9/8
℔ pound annas	2¾	2½	2¼	2¼	2	1¾
Nails ℔ lb. (*abt.*)	400	200	160	100	80	35

Triangular Barbed Wire Nails.

℔ 1 cwt. keg	1″	1½″	2″	2½″	3″	4″
Rs.	14/	12/	11/	10/8	10/	9/8
℔ pound annas	2¾	2½	2¼	2¼	2	1¾
Nails ℔ lb. (*abt.*)	500	290	160	110	75	40

ASPHALTE	per ton ...	69	0	0
PORTLAND CEMENT—John Bazely White and Bros.				
"Whites" Best ℔ barrel of abt. 375 lbs. net ...		11	12	0
Sole Agents for S. Canara, Coorg, Malabar, Coimbatore, Travancore.				
COAL TAR, Best ℔ barrel of abt. 4 cwts. gross ...		20	0	0
WINDOW GLASS—per case of 100 sq. ft. (all sound) ...		15	0	0

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out every bazaar in India. The Committee believed that the imports of China and Ceylon teas into India for use in the country were not nearly as extensive as was apparently believed in London, as a large proportion of tea thus imported is re-exported to the Persian Gulf and other foreign markets. The Secretary was instructed to write to the Bombay Chamber of Commerce for particulars of the imports of tea from China and Ceylon, and also for the exports of tea from Bombay to Persian Gulf ports. The general question of the sale of India tea in this country was to be fully taken up at the next meeting of the Committee after consideration of the papers now in circulation.

Considered letters of the 13th, 23rd, and 29th July and 5th August from the Secretary, Indian Tea Association, London, in connection with the American Market Fund. The reference made by Mr. Blechynden at a meeting of the London Committee to samples of Green and Oolong teas sent from India and highly appeciated in America was considered by the Committee. Information was afforded by the members of the Committee as to their own experience with manufacture of Green tea, and it was stated that experiments recently made proved that it was almost impossible to produce tea at all equal to samples sent out, even with panning and hand-rolling. In addition to this the cost of manufacture was very high. The Committee had before them a most interesting circular issued by Messrs. Gow, Wilson and Stanton on the effects of high exchange and increased production on the tea industries of India and Ceylon. It was decided that this circular should be reprinted and circulated to all members of the Association for their information.

Letter of 16th August from the Secretary of the United Plan Association of Southern India, and submitting, for the opinion o Committee, copy of a resolution passed at their annual Gen Meeting of 9th idem on the subject of the reduction of the Bri tea duty which read as follows: That this Association, through representatives, Messrs. Sanderson and Mangles, press upon Indian Tea Association in London the urgent necessity for in ing Government to reduce the import duty on tea in Great Bri and suggest that a strong representation should be made in junction with the Ceylon Tea Association in London. The Secre was ordered to acknowledge the letter, and inform that Associa that the Committee were in accord with the terms of the resolu and to inform the London Association of the fact.

Considered letter of 30th August from Messrs. Bruce & Warrin handing a draft form of the proposed tea seed contract. After cussion it was decided that the contract should be submitted to Tea Traders' Association for their opinion.

Considered an article from the *Pioneer* of 1st September on "Indian Tea Industry." The Secretary was instructed to have article reprinted and circulated to all members of Association.

Considered letters, dated 25th and 26th August, from Me Andrew Yule and Co., and Messrs. Davenport and Co., respecti on the subject of the crop estimates. Both these firms expressed opinion that the issue of another estimate is unnecessary in interests of growers, and were unwilling to furnish figures of probable outturn of the gardens under their management. Committee regretted that these firms did not see their way to r

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[w.—3-9-98—t.f.o.]

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[w. 1-10-98—t.f.o.]

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ugers, screw of sizes.	Glasses for semaphore, of sizes.
ocks, irons, galvanized, of sorts and sizes.	Glasses, crown, of sizes.
	Gauges, iron, for point rails.
alances, Poley's, to weigh 400lb.	Handles, door, spare.
eak, iron, large.	Handles, iron, for pit saws.
elting, leather.	Hinges, brass and iron, of sizes.
evils, sliding.	Iron, angle, of sizes.
olts, screw, with nuts.	Iron, flat, of sizes.
rushes, platform, with handles.	Iron, T, of sizes.
hisels, of sorts and sizes.	Lamps, of sorts.
hains.	Nails, iron.
offee mills.	Paints and powders.
ramps for drilling rails.	Paste, black Torbays, 28lb. kegs.
ompasses, proportional, beam, and Napiers.	Pitch, Stockholm.
	Rulers, rolling, parallel.
iving apparatus.	Screw, jacks, tripod & traversing combined with bottles, 5 tons.
merald green, ground in oil 28lb. kegs.	Steels, spring, $1\frac{1}{2}$in. by $\frac{3}{8}$in.
les, of sorts and sizes.	Winches, crabs.
orges, portable, with bellows.	Wheels, cast iron for trucks.

A complete list of the articles, with prices and other rticulars, may be obtained on application to the General torekeeper, Madras Railway, Rayapuram, and the articles ay be inspected by intending purchasers within office ours.

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[w. 1-10-98—31-12-98.]

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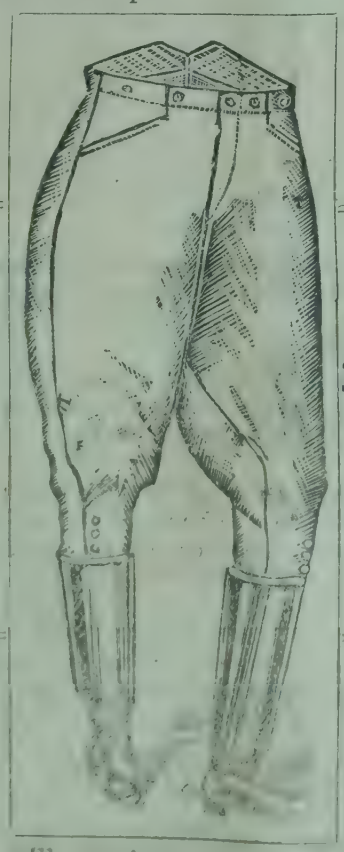

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Read this letter; it will convince you that we *can* make Breeches.
r. H. S. Dickins, of Yercaud, writes : "*The Breeches received ; they fit me rfect. I can, with confidence, recommend you as Breeches Makers to all my iends. We get our kit from Bombay, and have to pay about double your price.*"
v. 1-10-98—31-3-99.]

E. D. SMITH & CO., MADRAS.

the usual returns in accordance with the resolution passed at the annual General Meeting of the 18th August. The Secretary was instructed to enquire whether they could not reconsider their decision. The Secretary placed on the table telegrams from the various districts furnishing crop prospects.

A DRUGGIST'S GARDEN.

MR. T. N. CHRISTIE AT WALLINGTON.

ABOUT twelve months ago did the Manor House, Wallington, pass into the hands of Mr. Thos. Christie, who is exceedingly busy in an endeavour to bring it and the gardens into good condition. The Manor House and grounds occupy nearly 20 acres, and the land is situated between two roads, one of which leads to Hackbridge, the other to Croydon. The residence is a famous house, and parts of it are very old. Almost underneath the drawing-room even is an old Norman chapel, and quaint steps leading thereto. It is said that the first Italian roof put upon a residence in this country was that used in the case of the Manor House. There is evidence that at one time the gardens were the subject of intelligent interest, as, for instance, in the selection of the trees and shrubs, which, according to report, was the work of an Italian. Everything has since been neglected. The trees have overgrown each other, the fine, extra large, variegated Hollies and other ornamental species are either in unsuitable positions, or are hidden by less worthy specimens. A year ago there were no laws, unless a meadowlike greensward may be described as such ; there was no kitchen-garden, and the Rockery, which, in spite of its neglected condition, may be capable of improvement, was utterly overgrown with undesirable plants. Mr. Christie has done much in the direction of improvement, by attacking the most needed reformations first. There is now, therefore, a kitchen-garden, with good crops of vegetables, and young fruit-trees have been planted. There is a conventional but pretty flower-garden close to the house, and the surrounding lawn has been brought into as good a condition as the time would permit.

Walking with Mr. Christie through the vegetable-garden, we were made aware of a fact that we suspect gardens in rural districts may not know so well as their suburban *confrères*. The cabbages were protected by nets, just as were the strawberries ; and it was affirmed it is difficult to preserve the Brassicas from the voracious appetities of the wood-pigeon. Mr. Christie has for many years been a zealous Fellow of the Linnean Society ; he is also the head of a large firm of wholesale City druggist, and one department of his garden indicates that his greatest interest lies in the cultivation and distribution of economic plants. There is a good collection of these interesting plants which his special knowledge of the value of drugs has led him to acquire. Mr. Christie disposes of the plants commercially over the whole world. He must have a wide correspondence, for as we pass along the house, this plant is described as having been sent from the West Indies, that from Queensland, the other from Columbia or Japan, others from East and West Africa, and so on.

TROPICAL PLANTS.

In this way Mr. Christie acquires plants without names, but with worderful descriptions. They frequently turn out to be unimportant, no doubt, but now and again quite a new plant is flowered. Thus we were shown a new ornamental Begonia, several important Rubber-plants, and other species that may turn out to be valuable. But there is no doubt in respect of such well-known plants as the Coffeeas, Vanillas, Cocas (Erythroxylon Coca, and Theobroma Coca), which we noticed in some quantity, nor as to the Ginger (Zingiber officinale), the Pepper (Piper nigrum), the Arrow-root, &c. Piper nigrum produces the pepper of commerce, though there are many other sorts of pepper that are obtained from other genera. All pepper-corns are black, and the white form is obtained by fermenting the seeds. Black pepper has always the best flavour.

The nutmeg-tree, too, is here. It is Myristica moschata, or officinalis, and grows to 25 or 30 feet in height, being cultivated extensively in the Banda Isles, Sumatra, Java, and the Mollucca Isles. There is also a large camphor tree 9 feet high. Close to the plants which furnish all these tasteful articles was the deadly poisonous strychnos (S. nux vomica), a member of the Loganiaceous group, almost all of which are more or less poisonous. The strychnos is a native of India, grows to a moderate size, and its fruits somewhat resemble oranges. Besides being a deadly poison, nux vomica is also a valuable drug. There were many varieties of the Strophanthus that yield the heart tonic. Next we notice the

mahogany-tree (Swietenia Mahogani), but there are many kinds of mahogany from various countries, and obtained from different species of trees. Passing a species of Hibiscus in bloom in the stove, Mr. Christie observed that by a new process, yet in an experimental stage, it may be possible to utilise the full length of the fibre contained in this plant.

We next notice the cassia in bloom, the origin of the school boy's medicine—"senna." It is a yellow-flowered leguminous plant, of quite ornamental appearence. One species, C. occidentalis, of the Indies, furnishes a coffee in use by the negroes. Next is the Guaiacum officinale, which yields the Gum Guaiacum of commerce, and a very heavy wood also; Eucalyptus in several species; and the Cinnamon (Cinnamomum zeylanicum). This Lauraceous plant furnishes the best cinnamon, and is cultivated extensively for the purpose in Ceylon. Cecropia peltata, the trumpet-tree of the West Indies and tropical America, said Mr. Christie, will supersede the bamboo for many purposes; its hollow, light wood grows very quickly. A friend sent the plants from Columbia, advising that they be planted out-of-doors, stating that in that country the tree grows to a height of 60 feet. Passiflora edulis, and many other economically interesting plants we saw, but must refrain from enumerating them. As we looked at a plant of Ilex paraguayensis, Mr. Christie surprised us by remarking that it is in great demand, and that even in England there are thousands of people now taking the Paraguay tea as a beverage. Weed it a long time ago, but our memory of the liquid is still vivid, and we have no intention of repeating the experience. On the roof of one of the houses were Cissus discolor and C. albonitens, the latter with aërial roots 8 feet long. A variety of purple-leaved Coleus was noteworthy too, the leaves being larger in all respects than is usual.

Near to the southern entrance to the residence is a very old plant of Wistaria sinensis. It has been slung across to a variegated holly-tree, and now covers the top of this. An iron chain from one to the other has become embedded at either end through the growth made by the Wistaria and the Holly.

Before taking leave of Mr. Christie, our attention was drawn to a Wardian-case, then being filled with young rubber plants (Castilloa elastica) for exportation. The plants were dibbled into a compost in rows, and a flat lath placed over the surface between each. Then two laths were placed longitudinally along the sides of the case, and over the ends of those between the rows, thus securing the soil and plants from becoming loosened.—*Gardeners' Chronicle.*

FAIRLY WELL ISN'T WELL ENOUGH.

LET us say that your wages are twenty shillings a week. You have worked hard, done your best, and feel that you have earned your money. Very good. Now imagine that when Saturday night comes your employer hems and haws, and wants to put you off with fifteen. I'll be bound you would think yourself hardly treated. What are the great strikes in this country commonly about? Why in some fashion they are about wages or hours; it comes to the same thing. Be it understood that the writer uses this fact as an illustration of another fact—that is all. What is that other fact? We will work it out of the following personal statement.

"Nearly all my life," says Mrs. Sarah Dalby, "I have been subject to attacks of biliousness, accompanied with sickness, but got on fairly well up to the early part of 1882. At this time I began to feel heavy, dull, and tired with an all-gone, sinking sensation. My skin was sallow, and the whites of my eyes of a yellow tinge."

As everybody knows, or ought to know, the colouring matter was bile. The liver being torpid, and, therefore, failing to remove the bile from the blood, it entered the skin; and showed itself on the surface. But the discolouration isn't the worst mischief done by the vagabond bile, containing many poisonous waste elements; it disorders the whole system and sets up troublesome and dangerous symptoms, some of which the lady names.

"I had a bad taste in the mouth," she goes on to say; "and, in the morning particularly, was often very sick, retching so violently that I dreaded to see the dawn of day.

"My appetite was poor, and after eating I had pain at my chest and side. Frequently I couldn't bring myself to touch food at all; my stomach seemed to rebel at the very thought of it."

[This was bad, but the stomach was right, nevertheless. More food would have made more pain, more indigested matter to ferment and turn sour, more of a load for the sleepy liver, more poison for the nerves, kidneys, and skin. And yet, *without the food*, how was s live? It was like being ground between the upper and the n millstones.]

"After this," runs the letter, "I had great pain and flutteri the heart. Sometimes I would have fits of dizziness and go off a faint, which left me quite prostrated. Then my nerves becar upset and excitable that I got no proper sleep at night, an account of loss of strength I was obliged to lie in bed all day for together. I went to one doctor after another, and attend Bartholomew's and the University Hospitals, but was none the b for it all.

"In September, 1883, my husband read in *Reynolds' News* about Mother Seigel's Curative Syrup, and got me a bottle After taking it for three days I felt relieved. Encouraged cheered by this I kept on taking the Syrup, and in a short tin the pain and distress abated, and I was well—better than I had been. That is ten years ago, and since then I have never anything. With sincere thanks, I am, yours truly (Signed) Sarah Dalby, 93, Tottenham Road, Kingsland, London, N., Jan 2nd, 1894."

Now run your eye back to the first sentence of Mrs. Dalby's l and you will come upon these words, "*I got on fairly well,*" *This* is the sad thought. Her life has always been at a disc she has always got less than her due; she lost part of her hea wages. Do you take my meaning? Of course. Whatever ma our differences of opinion as to the rights of capital and the val labour, it is certain that every human being is entitled to pe health—without reduction, without drawback. All the mo nobody else loses what one person thus gains. No, no. O contrary, a perfectly healthy person is a benefit and a blessing who are brought into relations with him.

But do all have such health? God help us, no; very, very Why not? Ah, the answer is too big; I can't give it to-day. the vast crowd who only get on "fairly well" I tender my symp and advise a trial of the remedy mentioned by Mrs. Dalby.

MARKET REPORT.

COFFEE.

Messrs. R. J. Rouse & Co's Weekly Coffee Report (September 9, says:—A steady tone prevailed at auctions this week and the mar most cases was in seller's favour.

About 400 bags East India were offered, chiefly in small lots had been catalogued before. One good Neilgherry mark, however, re very full prices.

Central American kinds met good competition and several fine parcels were disposed of at extreme rates; but common descrip sold slowly.

Futures have been quiet with very slight fluctuations and quot are unchanged to 3d lower since our last.

Messrs. Wm. Jas. and Hy. Thompson say in their Report of the Co Markets for the Week ending September 7th, 1898:—Bank rate Bombay Exchange closes at 1s $3\frac{3}{32}$d. Brazil Exchange $7\frac{5}{8}$d. paper $3\frac{1}{2}$ % $62\frac{1}{2}$. Silver $27\frac{3}{4}$d per oz.

This article continues to meet a steady demand, prices for me qualities being about unchanged at the recent advance, whilst fine able growths realize very full rates to dearer.

Brazil markets quiet.

According to Messrs. Duuring and Zoon, the European stoc 1st inst. showed a reduction of about 3,600 tons, whilst the visible s was 48,850 tons larger, the respective figures being 203,800 against 207,400 tons, and 387,070 tons against 338,230 tons o 1st August.

Daily receipts averaged 14,400 bags in Rio, and 33,200 bags in Sa

Futures have been dull, and close about 3d to 6d per cwt. lower, Good average Santos in Havre, December delivery, fcs. 39.00, in burg pf. 32, and No. 7 low ordinary Rio in New York $5.75.

Prices realized at auction for the principal Marks of East India:—

COORG.

	A	B	C	PB
Ferguson's Kencha Kotty Coorg.	97/-	82/-	47/-	105/6
Grant & Abbs Cowerie Betta Coorg	96/-	75/6	46/-	91/-

WYNAAD LIBERIAN.

	A	A	A		
Arbuthnot's Liberian	30/6	35/6	37/-	—	—

London advices of 9th September state :—
Only moderate supplies have been brought to auction. Ceylon obtained ly recent values, and grey and faded East India brought relatively od prices. Ordinary descriptions of Foreign growths have sold slowly occasionally easy rates, but all desirable qualities met with a good mand and extreme prices were paid for good to fine Costa Rica and lombian. Futures have been quiet, and though no material change in ces can be quoted, the tendency has been rather easier, closing as lows :—

London	...Santos	...December delivery	... 31s. 6d.
New York	...No. 7 Rio	... „ „	... 5.75 cents.
Hamburg	...Santos	... „ „	... 32 pf.
Havre	...Santos	... „ „	... 38½ francs.
Holland	...Good ordinary Java	...	... 37¼ cents.

Imports Deliveries and Stock of Coffee in London are as follows :—

		Stock.		Imports.	
		1898.	1897.	1898.	1897.
West India	... tons	516	391	1,586	802
Ceylon	... „	142	140	278	395
East India	... „	2,148	2,113	5,566	5,062
Mocha	... „	535	491	653	490
Brazil	... „	3,557	2,184	2,801	1,669
Other Foreign	... „	12,960	6,977	26,255	20,234
Total	... „	19,858	12,296	37,139	28,652

		Home Consumption.		Export.	
		1898.	1897.	1898.	1897.
West India	... tons	258	244	1,151	515
Ceylon	... „	105	123	140	254
East India	... „	1,835	1,654	2,689	2,106
Mocha	... „	505	368	112	159
Brazil	... „	680	851	1,535	1,869
Other Foreign	... „	6,416	6,555	11,544	9,796
Total	... „	9,799	9,795	17,171	14,699

The preceding figures exhibit—

In the imports an increase this year of		8,487 tons.
Home consumption a decrease of		4 „
Export an increase of	...	2,481 „
Stock an increase of	...	7,562 „

Auctions this week have gone off as under :—

Ceylon.—*Plantation.*—16 casks 4 tierces 8 barrels 4 bags sold, triage s to 43s, smalls 75s to 91s, low middling 99s, middling 101s 6d to 106s, ld 112s, pea-berry 90s to 114s.

East India.—379 bags sold as follows :—*Coorg*, small 44s to 48s, low ddling faded and rather small 58s to 63s, low middling dull greenish s to 76s, middling 80s to 82s, bold 96s to 97s, pea-berry 83s to 105s 6d ; *ilgherry*, triage 52s, smalls 63s 6d, low middling 61s, middling 78s, od ditto 85s 6d, bold 83s 6d to 100s, pea-berry 91s 6d.

Wynaad, *Liberian.*—122 bags sold, triage and damaged 15s to 23s, dinary brown 25s to 26s 6d, dull bold 30s 6d, good and fine bold yellow s 6d to 37s.

Johore, *Liberian.*—88 bags sold at 29s to 32s 6d.

Mocha.—144 half-bales short-berry bought in.

Abyssinian.—65 half-bales bought in.

African.—51 bags bought in.

Jamaica.—45 barrels 49 bags partly sold, good to fine ordinary pale s to 51s, low middling greenish 68s 6d.

Costa Rica.—2,273 bags sold—common and pale small 32s 6d to 39s 6d, dinary to good ordinary dull pale 41s to 46s, fine to fine fine ordinary s 6d to 60s, low middling dull greenish 64s to 66s 6d, middling 76s 77s, pea-berry 55s to 62s per cwt.

Colombian.—2,832 bags mostly sold, small pale 40s, good to fine dinary 42s to 50s 6d, fine fine ordinary and low middling 56s to 60s, ddling 68s, good middling to fine 73s 6d to 90s, fine bold 102s, pea-berry s ; London cleaned, smalls 26s 6d to 49s, damaged and soft dull greenish xed red 46s to 58s 6d, low middling dull greenish rather mixed 60s 6d 65s, middling greenish colory 67s to 75s, good middling and bold colory s to 89s, good bold 90s to 99s, pea-berry 56s to 91s per cwt.

Guatemala.—1,220 bags partly sold, ordinary dull foxy brownish 39s, alls 45s to 46s 6d, fine to fine fine ordinary greenish 50s to 58s 6d, pea-rry 58s 6d to 68s 6d. London-cleaned, smalls 32s to 39s, low middling ll colory 63s, bold 81s, pea-berry 95s per cwt.

Mexican.—303 bags partly sold, smalls 26s 6d, ordinary mixed medium 38s 6d ; London-cleaned, smalls 38s 6d, middling greenish 63s 6d, boldish colory 78s 6d to 79s, pea-berry 97s.

Salvador.—Of 517 bags offered about 120 bags sold, common brownish to good ordinary dull foxy pale 37s to 39s, fine ordinary pale 46s ; London-cleaned, pea-berry 72s to 74s.

Peruvian.—45 bags dull palish sold at 49s 6d.

Brazil.—38 bags washed Santos, London-cleaned, sold, small 40s, colory 50s 6d, pea-berry 54s per cwt.

Receipts in Rio and Santos.

	1898-9.	1897-8.	1896-7.	1895-6.
Sept. 7—	Bags.	Bags.	Bags.	Bags.
Rio ...	... Holiday	—	16,000	16,000
Santos	... „	—	74,000	27,000
Total 5 days				
Rio ...	... 60,000	49,000	59,000	52,000
Santos	... 106,000	75,000	99,000	83,000
	166,000	124,000	158,000	135,000
Since July 1—				
Rio ...	... 728,000	1,102,000	802,000	625,000
Santos	...1,485,000	1,827,000	1,323,000	910.000
Total	...2,213,000	2,929,000	2,125,000	1,535,000
Crop ...	... —	10,461,000	8,680,000	5,489,000

Exchange 7 3/16d, previous day 7 17/32d.

To-day's supplies at auctions comprised :—406 bags East India, 15 bags Wynaad Liberian, 281 packages Jamaica, 118 bags Nicaragua, 1,084 bags Colombian, 16 bags Peruvian, 543 bags Vera Paz, 2,467 bags Costa Rica, and 322 bags New Granada. The demand was quiet, but on the whole about yesterday's prices were realised. Tone flat.

To-day's Havre & Hamburg Coffee Terminal Quotations.

(*Communicated by Mr. Edward Nauen.*)

	Havre.			Hamburg.	
	10.15 a.m.	12 noon	3.30 p.m.	10.15 a.m.	2.30 p.m.
Sept., 1898.....	38¼	38¼	38¼	32	31¾
Dec.....	38¼	38¼	38¼	32	32
March, 1899...	38¾	38¾	38¾	32½	32½
May.....	39¼	39¼	39¼	32¾	32¾
	Quiet. Sellers.	Quiet. Buyers.	Steady. Buyers.	Quiet. Buyers.	Quiet. Buyers.

TEA.

London advices of 9th September report :—

China.—Demand remains poor in the extreme, private sales being of very little moment. At auction not much offered, and as the assortment was poor, only a small proportion sold. prices showing some irregularity, more especially for Green Teas.

Since our last 4,113 packages have been brought to the hammer, and partly found buyers as follows :—

half-chests new Moning siftings 2⅝d.
boxes new make Congou, 5⅛d to 6¼d.
boxes Canton scented Caper, fair to medium 4½d to 7d.
half-chests and cases Moyune Green :—Gunpowder, fair to medium 5⅝d to 7½d, good medium to good 7¾d to 9¾d. fine 10½d to 1s 2¾d ; Imperial 5¼d ; Young Hyson, low 2¾d, fair 4½d, medium to good medium 6d to 6½d. good 8d to 8¾d, fine Sow Mee 11¼d to 11½d ; Hyson, low 2¾d, medium 6¼d, good Fong Mee 7⅝d to 10d.
half-chests Ping Suey Gunpowder 4d to 4⅝d.
boxes ditto, fair 4⅜d to 4½d, good medium 7d.

Indian.—The quantity brought to the hammer was over that of last week, viz., 39,300 packages against 30,200 packages and 37,600 packages in 1897. No doubt owing to better deliveries for August and confidence imparted by the satisfactory statistical position of all Tea, there was an increased enquiry and the sales passed with good spirit, prices tending upwards for all useful liquoring descriptions. Pekoe Souchongs were in more request for home and export, a considerable trade being now done in these for the Continent as well as for America. Medium grades with thin infusions, however, still continue to rule irregularly and in buyers' favour.

For 30,800 packages on Garden Account 9½d per lb. was realised, compared with 9½d per lb. for 29,800 packages and 10d per lb. for 19,500 packages in the two preceding seasons.

Ceylon.—Auctions was smaller, amounting to 25,900 packages *versus* 29,400 packages in the preceding week, and 29,300 packages a year ago.

In the face of gradually decreasing supplies and more general demand throughout the country there was brisk competition for nearly all kinds, resulting in a rise of ¼d per lb. in many instances for common to fair

leafy sorts, and ½d per lb. for medium Pekoes and broken Pekoes. Fine and finest lots, especially when flavour showed improvement, also sold dearer.

Owing to the smaller quantity of fine invoices represented, the average remains at 7⅞ per lb., as at the beginning of the month, and 7¾d per lb. on the 9th September, 1897.

JAVA.—Nearly 2,000 packages of direct import were included in the catalogues and meet with a fair reception, former values being fully maintained.

DELIVERIES.—The clearances of all Tea (on which duty has been paid) from the London warehouses, as per official returns, were :—

From 1st to 6th Sept., 1898.....3,131,843lbs.
„ „ 1897.....3,586,131 „

During the week the following have been printed for sale by public auction :—

	Sold. Pkgs.	Withdrawn. Pkgs.	Total offered. Pkgs.
India	35,553	3,730	39,283
Ceylon	24,550	1,315	25,865
Java	1,666	243	1,909
Total	61,769	5,288	67,057

Also 525 packages from second hands.

Messrs. Gow, Wilson and Stanton's Indian, Ceylon, and Java Tea Report, dated September 2nd, 1898, says :—

QUANTITY BROUGHT TO AUCTION IN LONDON
FROM 1ST JUNE TO DATE.

	Indian.	Ceylon.	Java.
1898-1899...	216,684 packages.	341,060 packages.	11,328 packages.
1897-1898...	199,081 „	371,565 „	13,090 „

30,423 *pkgs.* INDIAN
29,482 „ CEYLON
1,341 „ JAVA
} Total 61,246 packages were offered in public auction this week.

Indian. A welcome increase is shown in the month's deliveries of Indian Tea.

Quotations were maintained with strong demand, Teas of useful character meeting with brisk bidding and realising good prices. The weakest market was for medium grades, but Teas for price continued strong. The Official Wire gives exports to U.K. from 1st April to end of August as lbs. 47,917,000, against lbs. 48,178,000 same period last season. Averages :—"Amalgamated Tea Estates Co. Dooteriah," 2/3; "Beheating," 2/0¼; Amal. T Co. Kalej," 1/11.

Week's average of Tea sold on Garden Account 1898, 24,381 pkgs., av. 9·30d. 1897, 23,029 pkgs., av. 10d.

Ceylon. The auction was again fairly heavy but not too large to attract general competition in view of smaller arrivals, the Teas selling with a somewhat firmer tendency for all descriptions, with good competition. The Official Telegram gives exports from 1st January to 31st August as lbs. 67,000,000, against lbs. 71,250,000 same period 1897, and estimates quantity available for current month as 6½ to 7 millions. The following averages may be mentioned :—"Carolina T Co. Goatfell," 1/1; "Ragalla," 1/0¼; "Dimbula T Co. Lippakelle," 1/–.

Average for week 7·74d., against rather over 7½d., same perio year.

Ceylon Tea sold on Garden Account 1st January to date 790,111 pkgs., av. 7·60d. 1897, 778,776 pkgs., av. 7·60d.

Java. These Teas met with good competition and sold at prices. 108 pkgs. "Goalpara" averaged 10d. per lb. 9,542 packag to be offered in Amsterdam on the 15th September.

Bank rate 2½ per cent. Exchange on London three months si Calcutta 1/4 1/16. Colombo 1/4 1/16.

IN AUSTRALIA.

The following notes are from Australian papers :—

SYDNEY, *September 3rd.*—Private business included, 25 chests of Broken Pekoe at 7¾d. and other business was pending for about 200 ages for which vendors were asking ⅛d. to ¼d. more than buyers wer ing to give.

MELBOURNE, *September 5th.*—Sales of tea covered 1,300 half-che panyong at 5¾d. to 6d.; 75 chests of Ceylon at 6d. to 6½d. and 25 ch Ceylon at 10½d.

ADELAIDE, *September 1st.*—Tea sales have been of fair volume in C and China, at satisfactory prices.

PEPPER.

Black.—The tone of the market is firm but quiet, with sales esti at about 200 tons at full rates :—

Singapore on the spot (basis fair)		4 13/16d
do	Aug.-Oct. shipment (s.)	5d
do	Sept.-Nov. (s.)	5 1/32d
do	Oct.-Dec. (s.)	5 1/16d. to 5 5/32

At public sale on Wednesday 505 bags Singapore were offered bags grey sold at 4⅝d. to 4¾d. 234 bags Penang retired at 4¾d. to 4⅞

White.—The market is quiet, with only small transactions. remain unchanged, with sales of about 50 tons as under :—

Singapore (basis fair) on the spot		8¼d
do	Oct.-Dec. (s.)	8¾d
Penang, near at hand		7¾d
do	Dec.-Feb	7 15/16

Auctions on the 7th inst. embraced 203 bags Singapore and 15 Siam which were bought in at 8⅜ to 10½d, and 8¼d to 8⅜d per lb. respec

Closing report says :—

Black is firmly held, but business has been unimportant. Whit quiet.

GINGER.

Cochin.—Auctions opened at firm prices for washed, but subseque decline of fully 2s. per cwt. was submitted to; cut kinds are slow and everything catalogued was bought in, 36 cases 1,425 bags b forward and 670 bags found buyers as follows; medium and small w rough, mouldy (at the commencement of the sales) at 22s. 6d. to 23s. fair medium and small washed rough 22s., mouldy ditto 21s. 6d.; an fair brown rough Calicut Sorts 23s. 6d. to 24s. per cwt.

Japan.—98 bags dull limed bought in at 19s. per cwt.

Jamaica very slow, and the 150 barrels offered for competition the hammer unsold.

PUBLIC SALES OF SOUTH INDIAN TEA.

(AVERAGE FOR ALL INDIA 9·30*d.*) *September 2nd.*

GARDEN.	Total.	Average.	Broken Org. Pek. or Flowery Pekoe.		Pekoe and Unassorted.		Broken Pekoe.		Pekoe Souchong.		Broken and Souchong.		Fannings, and Vari	
	Quantity	Price.	Quantity	Price.	Quantity	Price.	Quantity	Price.	Quantity	Price.	Quantity	Price.	Quantity	P
Neilgherry ...														
Non Such ...	57	7¾	...	...	2	10	13	9½	41	7	...	...	1	
South Wynaad ...														
Richmond ...	12	6	2	9	3	6	...	...	7	5¼	...	...	...	
Travancore ...	**718 p**	**6·04**												
Arnakal ...	109 p	6¼	18	6½	40	6	30	7	10	5½	...	...	11½c	
Atchencoil ...	81	5¾	...	...	34	5½	25	6½	22	5	...	...	...	
Bison Valley ...	60	5¼	...	...	38	5	22	5½	...	...	...	...	...	
Carady Goody ...	70 p	5¾	...	...	21	5¼	24	6¼	...	...	...	...	25½c	
Elderslie ...	146	5	...	...	39	5½	24	6¼	78	4¾	...	...	5	
Kanan Dev Hil C A.	120½c	6½	...	...	30½c	6¼	60½c	6¾	30½c	5¾	...	...	...	
Parvithi ...	132 p	8	45½c	9½	47½c	8	...	...	30½c	6¼	...	...	10	

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A WEEKLY JOURNAL

WRITTEN BY PLANTERS FOR PLANTERS.

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DOMESTIC OCCURRENCE.—The fee for inserting a domestic occurrence will be *One Rupee* for each insertion, payable in advance.

N. B.—Remittances should be sent to E. C. Duft & Co., Proprietors, "Planting Opinion," 16/17, Armenian Street, Madras.

SEASON REPORTS.

TO OUR SEASON REPORTERS.

Please post your next reports to reach Madras on Friday, the 14th October, 1898.

Season Reports should be sent to the Printers, Messrs. Addison & Co., direct, and not to *Planting Opinion* Office.

Coorg.

Polli Betta, *5th October.—Weather.*—Heavy showers from N.-E. in the evenings or early part of the night nearly every day. More or less cloudy with hot bursts of sunshine during the day. *Plant-diseases.*—Leaf-disease still in evidence in parts. The portion keeping clear now may take it later, there's the rub. *Crops.*—Perhaps the earliest picking will not commence before beginning of next month. *Labour.*—Plentiful. *Works* well in hand. Digging getting on. *Health.*—Good. Slight improvement in prices of grains. *Interesting Item.*—Rifle Meeting fixed for 17th, 18th and 19th instant.

COFFEE ESTIMATES.

In our present issue we give a report on Coffee Cultivation in India recently issued by the Director of Statistics to the Government of India. Commenting on this, the *Madras Mail* observes that it is a pity that the statistics still suffer in accuracy and completeness because planters will not furnish all the information required. Our contemporary adds that "possibly the U.P.A.S.I. will take note of what the Director says on this point." The remark is a reasonable one, but it apparently presupposes (1) that the U.P.A.S.I. has *not* noted the matter and (2) that good would result from a mere "taking note" on the part of the Association. Here, it is to be feared, our contemporary errs, for in a matter of this kind the Association does not seem able to do much. At the last meeting the subject of "Crop Estimates" was on the Agenda paper, but when the discussion began it turned on *Tea* estimates alone. A resolution was passed that was certainly satisfactory in form, but there are not wanting sceptics who doubt if any useful practical result will

follow the passing of the resolution. In fact, South Indian tea-planters are not keen in preparing and publishing crop estimates, and it is probably fair to say that South Indian coffee-planters are strongly opposed to the framing of estimates. It is impossible for us to explain their objection. If some one among their number would enable us to do so, he would place us under a lasting obligation. We scarcely think, however, that any Honorary Secretary of a Planting Association in a coffee district will contradict our assertion that estimates are not in favour. As already stated, this is true of tea districts also, though in a minor degree. A glance over the estate statistics published in the U.P.A.S.I. book of proceedings, 1897, will show that an attempt was made to acquire information regarding crops, and that particulars were forthcoming in only a very few instances—in not one, we think, where coffee alone was cultivated on the estate.

It is a well-known fact that for practical purposes South India is the sole coffee-producing centre in India. The figures relating to Burma and to experimental cultivation in Sylhet and elsewhere are so small as to call for no notice. Coorg has official estimates prepared from time to time, but the remaining coffee-producing areas are to all intents and purposes beyond the pale of estimates. Figures relating to Coorg are unreliable, and even the after-statistics that purport to give approximate actual yields in Coorg, Mysore and elsewhere could scarcely be accepted as very trustworthy. Still, Coorg marks a small advance upon her rivals, and it is not long since we asked the question why Mysore and other centres should not follow suit, and furnish annual *official* estimates, if planters themselves will not move in the matter. The effect of estimates on the chief markets of the world is well known. In the report under reference we read: "In 1896 prices receded to a lower level, owing principally to reports that the Brazilian crop would be the largest on record." When we also find that since 1895 the production of Indian Coffee has been falling off, is it not reasonable to suppose that a forewarning of this in the shape of reliable estimates might have helped to counteract a downward tendency in prices of Indian descriptions. It is not our intention to suggest that Indian estimates would ever be as important or influential as Brazilian, or would receive as much attention in London and other markets. They could never influence the general run of values. But we are probably not wrong in saying that although the course of prices of Brazilian Coffee largely regulates that of all other sorts, still, the various circumstances that peculiarly affect East Indian crops are not without some influence on the demand for and prices of East Indian sorts. In other words if the Brazil crop shows a large increase, prices generally will tend downward, but if East Indian crops show a really important decrease, the downward tendency will, in all probability, be less marked with East Indians than with Brazils. That is, on the assumption that buyers are equally well informed regarding the probabilities of crops in the two cases. If corroboration of this be needed, we refer our readers to the quotations from a London commercial paper that are given on another page, under the head of "Coffee prospects in London." It is there distinctly stated with special reference to Coffee:—"We have been asked by several members of various branches of the East Indian trade to keep them well posted with regard to developments in those districts in which they were particularly intereste Again: "Small supplies, stiff prices, and we fear v little business, will be the result of the unsatisfactory stat affairs in India. Had the London Coffee market ma tained its strong position and 'bull' fever, the exorbit ideas of Coffee planters on the Coast would have ha chance of being realized, but since 'bears' have supersed 'bulls' again in Rios and Santos, the outlook for a g business in fine coloured East Indian has become m gloomy. The possibilities of a Brazil crop of 8,000,000 ba we fear, are hardly favourable to a strong 'bull' mo ment, although prices are low, but a crop of 8 millions lo small at the side of the last yield of 10,500,000 bags. great deal will depend upon the prospect of the next Bra crop."

Then again we may remark that the present price Brazilian coffee is the lowest ever known, though it wo appear that the estimates published from time to time h certainly not been exaggerated. Messrs. W. H. CROSSMAN BROTHERS, of New York, state in a circular dated 26th Aug that for years past many people at Rio have wilfully m represented the statistical situation to such an extent as admit of no doubt of their purpose. The following exam is then given: Stock in Rio, July 1, 1897, 228,000 bag receipts in Rio, July 1, 1897, to June 30, 1898, 4,301,(bags, together 4,529,000 bags. The shipments for crop season, July 1, 1897, to June 30, 1898, were 4,569,(bags, showing a difference shipped over and above stock and receipts of 40,000 bags, and yet leaving a st on hand there on July 1 last of 268,000 bags, which rea means a total of 308,000 bags of coffee more than w reported in the receipts, without any allowance being ma for home consumption. The strong remarks made Messrs. CROSSMAN thus appear to be fully justifi Finally, Messrs. CROSSMAN expect the total available qu tity of coffee from Brazil in the current season will exce 10,000,000 bags. This crop's receipts so far are the larg on record, excepting last season. This scarcely looks w for prices. The above shows, however, that the influence estimates is recognized in Brazil; and we cannot but thi that Indian planters lose more than they gain by failing draw up a well-considered scheme of framing and publis ing estimates.

NEW MARKETS.

THE *Planter* remarks that the greatest need of the T industry at present is new markets. In this we fully conc but the recommendation our contemporary makes for op ing up new markets does not commend itself to us. C contemporary suggests that superfluous men should not thrown out of work, as many are only too likely to be, the close of the season, but that proprietors, shareholde directors and agents should form a "Bulking Compan and start at once, make up a "standard mixture," a pack up sample boxes; that they should send out, all world over, the planters whose services are available salaries that should be moderate, but give them a suffici allowance to keep up their position as gentlemen, and w a commission dependent on their success in the busine This is not an idea that strikes us as practical. We sho rather say, let planters plant, and commercial travell

ut for business. Every man to his trade. There may be me notable exceptions, but in most instances the planter ould make a poor canvasser. Our contemporary ventures predict that if the scheme here outlined were adopted, in two or three years' time there would be an enormous xpansion in the consumption of Indian tea." It might be , but would not the *cost* also have been enormous, and t of all proportion to results?

CEYLON TEA ESTIMATES.

Those of our readers who have perused our leading article the present issue will readily understand the regret we lt at learning, after it was written, that the Udapu-llawa Planters' Association had passed a resolution That this Association regrets the publicity given to the ea estimates, which have seriously affected the price of tea uring the past three months; that if it is necessary to rame and issue estimates for publication, this Association eprecates that the Thirty Committee should not exercise ore care and caution, and from time to time revise these stimates as the season advances, and remit this informa-on to the Ceylon Association in London. This Association of the opinion that, had this been done earlier in the year, hen the shortness of crop was apparent to everyone, the ea markets would, in all probability, not have remained in uch a depressed state. This Association further regrets hat, when the Thirty Committee did revise the crop at heir recent meeting, the estimate was not reduced by at east 10 million lbs., or perhaps even 12 instead of 7." From n Association with such a full-mouthed name as "Udapu-llawa" much of evil might certainly have been xpected, but the only redeeming feature about the pass-ng of the above resolution is that out of 10 present person and three by proxy only four voted—all in favour f the resolution. Perhaps it is illogical and unreason-ng on our part that we should blame the six non-voters ore than the four voters; but we certainly think that neutrality" in a matter of this kind is, in its way, as eadly as "indifference" in matters of religion. If the eylon planters cannot make their estimates approximately orrect, that is certainly no reason why they should ondemn estimates *in toto*. If in times of short crops stimates cause prices to rise, surely planters ought not to rumble when in seasons of plenty prices fall. Moreover, e venture to suggest that unduly high—as well as low—stimates have a tendency to cut both ways. The former heck, the latter stimulate, any tendency towards over-roduction. The disease helps to work its own cure, or in the face of high crop estimates he is a bold man ndeed who pushes on the work of extension as boldly as if he estimates were low.

GREEN TEA.

There has been a fair amount of discussion in Ceylon ver the proposal to grant a subsidy to Green Tea, and one ritic has suggested that funds raised for the purpose of ushing Black Tea cannot be rightly diverted to the new bject. Another writer says that the Green Tea scheme s merely a revival. It was proposed by a New York roker in 1881, was strenuously opposed in Ceylon in 1893, and is now being advocated there. Among the advantages of making Green Tea this writer includes the following:—"The chief advantage will be that with the same quality of leaf from which you now make 50 per cent. of tea which will pass through a No. 12 sieve, you will get at least 80 per cent. of the new tea through the same sieve. In other words, you will have 80 instead of 50 per cent. of "Pekoe" grades, and 20 instead of 50 per cent. of Souchong grades which include the broken tea. The reason of this is that the lightly fermented and green teas are rolled while hot. The rolling and firing are alternate, and the leaf gets more and more sticky. At length it gets so sticky or gummy that each folding of the leaf is firmly held. In cold rolling (as in black tea) there is not sufficient gum developed, or rather the gum is too diluted with water, to make each folding stick tightly. Consequently in hot rolling the leaf becomes very much more tightly folded up, and of smaller grade than in cold rolling. I once made a sample of hot rolled tea which sorted out 80 per cent. of Orange Pekoe, *i.e.* of tea which went through a No. 14 sieve. But the ordinary cold rolled black tea from the same leaf gave me only 18 to 20 per cent. of tea of No. 14 grade; but at that time there was no demand for that sort of tea." Another advantage is that by the help of warm air the leaf takes much less power to make up with tightly curled and twisted tea. The adjective "green" does not, however, commend itself in the above connection to this critic, and he says:—"Green tea is a misnomer, and we want some short term to express our intentions:—

Light Indian Tea } would do fairly well.
" Ceylon " }

Indian or Ceylon 'Silver Tip' would sound well for the finer grades, as all these teas have

silver } instead of gold } buds or tips.
white } " yellow }

'Indian China' or 'Indian Japan tea' would be honest and would probably show the Americans that *our* China tea is better than that from China and so induce them to favour it." We can imagine an American grocer trying to sell "Indian Japan" tea!

NOTES.

Ceylon Tea Sales. At the public sale of Tea in Colombo on 27th ultimo, prices were on the whole firm at about the previous week's level.

Coffee in London. Latest mail advices refer to a good demand and steady prices, except for ordinary descriptions, which continued in excess of requirements.

Coffee Freights. Can any of our readers inform us what may be regarded as a nominal or average rate of freight on Coffee from the chief *Brazilian* ports?

Tea Samples per Post. We have seen no official declaration of maximum weight of tea-samples per post, but would recommend that none should

exceed 8 oz., as this is believed in some quarters to be the limit.

The Java Cinchona Factory. We must apologise to our readers for the omission from our last issue of the extract concerning "The Java Quinine Factory," now given on another page. It was referred to in our leading columns last week, but was held over by our printers in consequence of press of matter. They, unfortunately, failed to notice the connection between it and the leading article.

Calcutta Tea Sales. The average of the last Calcutta Tea Sales was five annas two pies. About 15,500 packages were offered on Friday, 30th September. There was a decided improvement in the market, there being good enquiry for all grades, but especially medium grades. The Bombay and other outside demand was also good. Taken all round, says the *I. P. G.*, this was the most satisfactory sale of the season. About 15,300 packages were sold, and teas for price were very firm.

Another Expert wanted. A cry is now being raised in Ceylon for the retention of Mr. Carruthers as cacao cryptogamist. It is pointed out that the N. E. monsoon is the most critical period for cacao fungi and that a Scientific Agricultural Department is an absolute necessity for Ceylon now. A correspondent even goes the length of saying that it is monstrous that Ceylon should be so far behind Java, which has a European staff of twenty-five scientific men attached to the Botanical Gardens.

A maximum size of Tea-Chest. The Colombo Tea Traders' Association have carried a resolution that the attention of planters and agents be drawn to the fact that packing more than 100 lb. in a chest, when the teas are for sale on the Colombo market, is prejudicial to the sale of such teas. This is owing to the action of the mail steamship companies stamping all Bills of Lading for the Colonies with the clause, "No package to contain more than 100 lbs. nett," and their declining to pay claims, when packages contain more than this amount.

Ceylon's Exports. The annual memorandum on the Trade of Ceylon for the first half of 1898, issued by the Principal Collector of Customs, shows that of *Tea* there were exported 65,236,220 lb. against 62,387,699 lb. in 1897, the value per lb. in 1898 being 38½ cents against 44¾ cents in 1897. Of this increase, 1,493,102 lb. went to Australia, 213,173 lb. to Hongkong, 1,024,383 lb. to Russia, and 590,767 lb. to United States of America; but there was a decrease in the exports to the United Kingdom, Canada, and New Zealand, of 569,472 lb., 72,715 lb., and 18,506 lb., respectively. Of *Cinchona* the quantity exported rose from 364,505 lb. in 1897 to 563,986 in 1898, and of *Cacao* from 19,746 cwt. to 29,454 cwt.

Tea in London. Fully previous rates for good qualities, common somewhat cheaper than a week earlier. This is the report from London regarding Indian Tea. Auctions of Ceylon were small and demand brisk, the latter being no doubt partly due to the reduced estimates just published by the Planters' Association of Ceylon. Some remarkable prices were obtained for Dar lings, which ranged as high as 2/2*d.* for good bre while Ceylon went up to 1/8¼*d.* per lb. Telegraphic adv dated 29th September report a steady market with g liquoring Pekoes in improving demand. Price of fair liq ing Ceylon Pekoe Souchong 6½*d.*; average 8¼*d.* (¼*d.* dov 24,000 packages Ceylon offered, 23,000 sold. Of Ind 40,000 sold out of 46,000 offered. Average 8¾*d.* (⅛*d.* do

Darjeeling Tea. Messrs. Baines & Co. write their circular: "Many planters s to have an idea that 'Darjeeling Tea sells as Darjeeling whether possessing the true flavour peculiar to the dist or devoid of it; but it should be most emphatically before them that in no other district is the differe between 'fine' and 'ordinary' more marked than in t own! nor is the reason far to seek. Fine flavoury Darj ings serve a special trade, and are not blended with o kinds, as are teas from other districts, and this special tr will not buy poor flavourless teas; therefore poor liquo Darjeelings have no identity, but go into the general ruc poor liquoring teas, of which at the moment there is a v plentiful supply." The truth of these remarks needs demonstration.

Coffee in the Straits. Mr. Donald Mackay reports Coffee has not been such a finan success in the Straits as was at one time expected, due a great measure, to the extraordinary fall in prices wh has lately taken place, but also to the ravages of a s bronze insect which feeds freely on the leaves of the tr and has very much the same effect upon it as leaf dise The ravages of this insect has been, according to Mackay, very severe indeed, and though in many est large numbers of coolies are employed in catching destroying it, the harm was mostly done before the ins could be exterminated. Still, he has seen a good dea Liberian doing very well at the Straits where interspe with cocoanuts. Sir Græme Elphinstone has a large ex of Arabian as well as some Liberian coffee on his prop which runs from 1,800 to 2,500 feet altitude. "Logie" indeed planted 300 acres since he came out three y ago.

Artificial manuring. Writing to the *Times of Cey* "Sceptic" asks that some planter at least five years' experience should state the result of s

COFFEE SHADE TREE.

Sun-dried Erythrina Lithosperma loppings, &c., contain ton:—

61·50	lbs.	Nitrogen.
57·38	„	Potash.
14·92	„	Lime.
13·68	„	Phosphoric Acid.

Seed cured under Messrs. Sutton and Sons' advice.

Orders should be booked early for the 1898-1899 crop of seed f the parent trees of above analysis at Rs.6 per pound contai about 2,000 seeds. *Germination guaranteed.*

Only thornless variety extant, and is not procurable anywhere from the

MANAGER, ARIENKOW ESTATE,

Shencotta

rience. "Here," he says, "owing to length of transport, artificial manuring costs roughly Rs.60 per acre, and what I gather (I haven't tried myself), the results are ncrease, first year (in fairly good tea) of about 80 lbs., second year 120 to 150, and the third year about 100 an acre, after which the tea goes back to its original l or less, unless it is manured again. This doesn't n to me to be good enough, as allowing the profit to be ents per lb., 300 lbs. increase during the three years, ly gives one back the original outlay less interest, and bers of estates are making nearer 10 than 20 cents lb. profit. What I and, I am sure, many others would nost thankful for would be a few figures dating back, five years for tea which was *then* in full bearing :—

40 acres field, which gave so much per lb., in 1893 was manured at so much per acre in 1894.

Yield in 1894	Yield in 1896
„ „ 1895	„ „ 1897"

inquiry is a pertinent one, and we should be glad to South Indian planters also "counting the cost" of ficial manuring and comparing this with the benefits ded.

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lity not quantity.

Addressing advice to Natal, the *Produce World* utters remarks that uld be carefully noted in India :—"Quality not quantity hat many places suffer from not paying attention to. is one of "The Produce World's" stock principles, sistently applied to every part of the world, that, just blood tells in a severe race, so quality comes out at the of the keenest competition. That we are not alone in opinion that the cheap and nasty will not pay in the g run is evident from the following remarks by the *ican Review* :—'Natal industries always seem to meet h some *nasty jar* just as they are turning the corner. e wattle-bark trade flourished greatly till some un-ncipled exporter spoilt the market by mixing much bad h little good. Then there is Natal coal, which frequently s the blame for mail-boats being behind time; and like policeman, isn't there when it is wanted, on the quays Durban. And now, Natal tea is having anathemas led as its fragrant head by experts at the Durban ricultural show. It is not that the Colony cannot oduce good quality, but the growers are so very anxious turn out record quantities that they neglect the quality so doing. There is clearly room for much improvement Natal's present industrial method." "Quality not antity" and "new markets" should be the watchwords Tea Planters' Associations for a long time to come.

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ina's Currency.

The following remarks of the *Economist* should interest many of r readers :—"The following extract from a report by Mr. nsul Fraser on the trade of Wuhu may be commended those who have been contending before the Indian rrency Committee that if anything is done to maintain e exchange value of the rupee at a higher level than its trinsic value, the tea industry of India and Ceylon will be riously handicapped in its competition with China, whose rrency is on a silver basis. For the fact of the matter is at the real currency of China is not silver but copper cash, d what Mr. Fraser points out is that relatively to silver is currency, as well as the rupee, is greatly appreciated. He writes :—"Copper cash continue to be very scarce and dear, as compared with silver. The reasons given for this scarcity are two : the large movement of cash to the North for Army use during the recent Sinico-Japanese War, and the melting down of large old cash by persons who find a profit in selling it when thus reduced to its primitive condition of copper raw material. Whatever be the cause, the results are a great deal of distress and inconvenience. It takes $1 now to buy from 880 to 900 cash, whereas formerly $1 would fetch 1,130 or 1,140 cash. This is a reduction of nearly 30 per cent. in the value of dollars, and a native paid $6 a month wages now is in a worse position than one who got only $4 when cash were cheaper, taking into account the rise in the price of necessaries, such as oil, salt, fuel, rice. For instance, rice, which formerly cost $2 20c. or $2 30c. a picul, has risen, successively to $3 40c. $3 50c., $4, and of late much more, a picul, and colza oil is at double the price it used to cost." The statement that copper and not silver is the currency basis for the China Tea trade is one that calls for further investigation.

LETTERS TO THE EDITOR

THE LADY-BIRD.

SIR,—An "Old Planter's" remarks on lady-birds, in your issue of the 1st instant, are rather wide of the mark. It is well known, and has often been mentioned in *Planting Opinion*, that certain lady-birds are purely vegetable feeders. It is equally well known that certain lady-birds are purely scale feeders. There may be lady-birds that do a little of both. Surely there is nothing wonderful, therefore, in the fact of a certain lady-bird taking half an hour to eat an aphis! I have seen the indigenous black lady-bird eat, or rather suck, the scale at the rate of two or more a minute. But surely it stands to reason that the lady-birds Mr. Newport brought out were chosen from among the purely scale feeders only, and moreover those that did the best work, *i.e.*, devoured the scale the fastest, will naturally have been chosen. The "Old Planter's" suggestion from the particular to the general is misleading.

"LADY-BUG, JUNIOR."

"GAINERS BY EXCHANGE."

SIR,—I have read your article headed "Gainers by low exchange," and I cannot say that I agree. The question of the currency of a country is on a much wider basis than its effects upon any particular class of the community. For instance, our exports were thirty millions in excess of our imports; it is clear then that after paying for our imports India had a surplus of thirty millions to expend, in fact was richer by those thirty millions. If the Government could not pay its way, it was open to it to levy a tax on exports, which would have only fallen upon the country at large, which having gained thirty millions could easily part with ten or twelve millions to assist the Government out of its difficulty, and yet the Government declines to put in force the simple remedy of a tax on exports. The question regarding the Government policy is this: have the exports fallen off since the closing of the mints, in other words to what extent has the country gained or lost? If it can be shown that the country has gained, then as a matter of course the Government policy is correct; on the contrary, if the country has in a conspicuous manner declined in its exports, then is the policy of Government condemned.

In 1895-96 the imports were about		70	millions.
Do.	the exports „	114	„
In 1896-97 the imports were about		72	„
Do.	the exports „	104	„

Here in one year we have the exports falling off ten millions; this of course might be due to the famine, and it would be unfair to take 1896 and 1897 as a criterion—if the average of five years is taken, say, from 1894 to 1899, we shall be able to judge of the effects of closing the mints in the country at large, and it would be premature to strike an average under five years.

It seems a self-evident proposition that a Government which taxes its exports some 40 per cent. will in course of time succeed in killing its exports—and then gold or no gold the country is ruined. Instead of a surplus the country will be unable to pay for its imports, where then are the taxes to come from? As for the gold currency, it will disappear and become gold bricks buried deep in underground cellars; that has been the fate of the gold mohurs, which at one time were plentiful, but have not been heard of for the last 60 years? Ask about a native's worth you will be told he has plenty of gold bricks.

It seems an astonishing fact that persons who know nothing of the habits of the people of India should have been consulted regarding a gold currency. Natives are very reticent regarding their gold deposits. No doubt merchants in the great towns are obliged to have a certain amount of cash in banks and Government securities, but the bulk of the monied class does not consist of merchants in towns only. It is notorious that the income-tax merely touches a fringe of the people. In fact, the buried wealth of India must be enormous, and it is still being added to; and seeing the great depreciation of silver it is certain that gold alone will be converted into bricks for the secret hoards. The great need of the Government is a good financier who will take a firm grasp of the situation and not narrow his views down to one particular idea, such as a gold currency contracting the silver currency, and such fallacious ideas.

Under a depreciated rupee the country gained, it remains to be seen how the country will emerge after a fair trial of the enhanced rupee. Much more might be said on the subject of the currency, for the subject is exhaustless, but for the present I have written enough.

OBSERVER.

GENERAL ARTICLES.

THE U.P.A.S.I. SECTION.

(UNDER THE CONTROL OF THE SECRETARY, U.P.A.S.I.)

THE Madras Government does not see its way, "in the present financial circumstances," to reconsider its decision not to co-operate with the Mysore Government or the U.P.A.S.I. in regard to the appointment of an Agricultural Chemist. It has, however, informed the U.P.A.S.I. of its belief that the Government of India has under contemplation the appointment of an Entomologist as referee for the whole of India; and has further stated that a Botanist acquainted with industrial problems connected with his science is shortly to be appointed for the Madras Presidency.

This is not very much perhaps, but it is at least a step onward, and if the industrial botanist is industrious, and reads his instructions in a liberal spirit, planters may derive much assistance from him.

Mr. Jno. C. Sanderson writes that he has taken steps to bring the subjects of the classification of Coffee and the reduction of the British Tea Duty before the London Chamber of Commerce at a meeting to be held on the 13th instant.

LATEST TELEGRAPHIC QUOTATIONS.

				LONDON, 5*t*
Bar Silver	...	...	...	27 15/16*d.*
Bank of England Rate	...	...	...	3 per
Coffee—				
Nilgiri, average (B) size	...	...	...	65/-
Middling Ceylon	...	...	...	103/-
Mysore, average (B) size	...	...	...	75/-
				NEW YORK, 4*t*
Coffee—Fair Rio	...	...	...	6¼
Futures—January	...	...	...	5·40
Silver—commercial bars	...	...	...	60⅛

THE NORTH AMERICAN TEA MARKETS.

A WRITER in the London *Daily News* deals with the fight tea markets of North America. "Our American cousins," "are not great tea drinkers, but they are gradually coming to the English habit. For several years past the Assam have subscribed to maintain a representative in the United whose sole duty is to push the sale of Indian tea, and the re so far been very satisfactory. The amount of Indian and tea taken by North America increased from 9½ million po 1896 to 11⅓ millions in 1897. Japan is our rival in the field, showing great energy. The Japan Government has allotted £80,000 to be spent in three years on the campaign, example may be commended to the attention of the Governm India which leaves the planter to carry on the struggle unas

ELECTRICITY AND THE GROWTH OF PLAN

ONE of the most attractive papers read on the closing the British Association related to the effects of electricit the growth of plants. Some striking experiments were des showing how electricity hastened the development of Under electric influence, for instance, strawberries yielded of 75 per cent. better than that grown under normal cond whilst the time necessary for maturing the fruit was lesse one-third. Some of the facts mentioned were not new, b novel theory was advanced that electricity helped the gro plants by enabling them to absorb water in greater propo and in the water, of course, there contains, in solutio mineral matter that goes to form the structure of the The whole question, however, does not seem to have beyond the experimental stage, and it is noteworthy tha Kelvin, who took part in the discussion on the subject, d appear convinced of the soundness of some of the arg used to show the favourable influence of electricity upon growth.—*H. and C. Mail.*

A MOVEMENT IN TEA.

IT is a peculiarly significant proof of the continual decline China tea trade that just now, when teas from the celestial are practically a drug on the market with no activity or pro them, and only a retail trade passing therein, buyers of Indi should be coming forward quite briskly and the market beco at good prices. The teas from our own possessions are quality this year, and now that they are landing in large buyers have a good selection, and we are able to test their o of the new arrivals. The good prices realised last week, as 2*s.* 4¼*d.* for Indian, show the estimation in which some gard held, and evince that steady improvement which is destined the China trade altogether unless great changes are effected methods of preparing for market. It is curious that the a work out at pretty much the same rate as this time last yea the sales are a trifle ahead; but the bidding has become prett just now, and the clearances will be heavier for the month market should have been relieved of a great weight often th by demand from outside these islands, and indeed it is very ne

production goes on increasing quicker than we can cope with
. But the fates have interposed a check. The efforts put
by the Indian and Ceylonese Associations to educate the
n public to the value of their teas has had its effect, and sales
e England have increased very much of recent years, while it
itable that the taste once created the further increase is only
ter of time. The sale of these teas is now increasing in
ica, for although only 1,955,039lb. went there in the first six
s of this year, against 3,137,942 in 1897 from India, Ceylon
ved very much, sending 4,290,404lb., against 3,442,394lb. last
America took more than she wanted in the corresponding
l last year, fearing a tea duty. Any increase this season would
itimate.—*Grocers' Journal.*

THE LURE.

E following amusing letter from "Friend of the Clergy"
ars in a Ceylon contemporary :—

How to Catch Creepers.

h reference to a paragraph in your London Letter of 9th
mber, referring to Archdeacon Dunbar, in which your corre-
ent mentions that this worthy was once "employed in some
f capacity by the firm of Williamson & Co., the creeper-mongers
leman St.," I have a word or two to say. He was!
November, 1892, I replied to an advertisement of the above firm
ng a vacancy for a pupil on a tea estate in Ceylon, and was
to call at their office to interview "Our Principal."
vent at the appointed time, and was duly received by Mr.
amson, who talked somewhat big, and said he must make en-
es as to my character, before deciding as to my fitness for the
ancy"!! (Note the *finesse.*)
n my turn, now asked some questions, one of which was as to the
ing to be obtained in the Island. The head of the firm pleaded
y to never having been in Ceylon, "but," quoth he, "there is a
eman who happens (?) to be in our outer office, who was many
out there and who can give you any information you require
at score." *Exit.*
presently re-entered, ushering in, with due reverence, an
ubted Archdeacon in full war-paint—apron, gaiters "cut saucy
the trotters," curly brimmed hat; and, to crown all, a blue
coat trimmed with bright yellow fur.
this presence I was now introduced and told, in honeyed
ts, of the joys of the spicy isle. He said he had been an Army
ain out here. Well, when Mr. Williamson thought I had
owed the bait, he withdrew his decoy, and I saw him no more.
ow dismissed me promising again to straitly inquire into my
edents.
vent to my guardian, who had to be consulted, and told him all
things, and he marvelled and said:—"My boy, everything
s very satisfactory, and, surely, the firm *must* be a respectable
if the principal is on such good terms with an Archdeacon!"
d it came to pass that, after a season, I took ship for Ceylon
here I am.
don't bear any grudge to this prelate, as I've not done so badly
I came here, but I wonder how many more parents and
dians he had helped to make up their minds as to whether or
"Algie" or "Bertie" should go "into Tea?"

THE AVERAGE YIELD OF TEA ESTATES.

Mr. H. Drummond Deane, of Peermaad, writes to a
lon contemporary as follows :—

was very interested in reading the evidence given by
srs. T. N. Christie and Leake before the Commission in London,
we owe a very sincere vote of thanks to those gentlemen for the
ise and able way they fought our battle. I would only urge that
were, if anything, too sanguine in their estimates which would
to make outsiders believe we were better off than is the case.
take it that the average of 320 lb. an acre for the 360,000 acres
ng 116,000,000 lb. is nearer the mark than 400 lb. an acre, for,
gh it is true a considerable amount of this acreage is not in
ing yet, it must be taken into consideration that many favoured
places with virgin soil or exceptional climate give from 600 to 800 lb. per acre. I believe if these places were eliminated from the estimate as well as all the tea not in bearing, the average would not be over 350 lb. per acre with the present system of plucking two leaves and the bud; and of the estates working on that average yield per acre, I doubt if justice can be done to them if they put their tea f. o. b. as low as 25 cents to 26 cents. Of course, when retrenchment is the order of the day, savings can be made in many ways; for instance, by non-clearing of drains; cheaper but not thoroughly good pruning; reduction of salaries (low as they are); and native supervision instead of European; but these are after all only temporary expedients resorted to in the hopes of being able by so doing to weather the storm. It seems to me that if, as I assume, a very large proportion of estates only produce from 300 to 350 lb. per acre, they cannot produce under 28 cents to 29 cents f. o. b., unless favoured by conditions of transport or by adopting some such temporary expedients for cheap working as mentioned above. And again when we take the Ceylon average at $7\frac{1}{4}d.$ to $7\frac{1}{2}d.$; if we look through the weekly sales, we will find many, too many, estates getting considerably less, and these estates are bound to go to the wall, if exchange keeps up and prices do not rise. While believing as I do in the survival of the fittest, still that is poor consolation for those who have to throw up the sponge, probably to be bought up at half this value, by the purely benevolent Sir. T. J. Lipton, who, at *a price*, would no doubt like to become one of Ceylon's largest producers, and so justify the misleading maps and advertisements he has been foisting on the public for some years.

I will not further trespass on your columns, but would add my protest against the action of the Indian Government to that of Messrs. Christie and Leake, and I have tried to show, strong as their case is, that it was really not strong enough—and that every Colonist should by every means in his power make known that public opinion of the producing classes is dead against the "Leiter" like corner of Silver by H. M. Indian Government. Had it not been for the American-Spanish War, we should have had the wheat producing industry of India in as bad a state as the tea, coffee, indigo, and cotton industries are to-day, but war prices saved them for the time. Something must be done for us, or it will soon be a repetition of 1879-80 with coffee, with only this difference, that in the former case it was a visitation of Providence, while in the latter it's a deliberate action of Government, who appear stimulated to copy Mr. Leiter in what he thought a very paying corner-game, but which ultimately knocked him badly.

A PERFECT CUP OF TEA.

The Secret of the Japanese.

A lady who has just returned home from a visit to Japan has brought with her the secret of how to make a "perfect cup of tea," as she calls it. It is really astounding, she says, that none of our writers have taken the trouble to explain the intricacies and inner secrets of the art of tea-making. They have given all their time and space to the women, the flowers, the odd life of the people, and the gay colours, utterly ignoring what to most women is of great importance, and, incidentally, great comfort.

When I arrived at Nagasaki I secured the services of a little Japanese girl, who was regarded as one of the best tea-makers in all Japan. She came to my room and brought her tea kit with her. She spoke a little English, and when I made my wants known and informed her that I desired to know every trick in the art, she squatted herself on the mat in a bay window, and the lesson began.

First she lighted an alcohol lamp, although a charcoal brazier is just as good, and placed upon the flame a quart of fresh, clear water, which in about five minutes came to a boil. While the water was heating she placed in another kettle a small portion of green tea. She carefully shook the kettle until the tea was spread evenly over the bottom, and when the water in the first kettle began to boil she removed it from the alcohol lamp and set it on the tray until it ceased to bubble. When it stopped seething she poured a sufficient quantity of the hot water over the tea to fill a small tea-cup, and then as quickly as possible poured it out, without letting it steep at all. There was the trick.

She explained to me that the tannin in tea is poisonous, and that the first contact with hot water takes from the leaves all that is worth drinking. The steeping process, common with us, is fatal to perfect

tea. When her brew came from the spout it was a colour between pale green and amber, such a colour as I have never seen in home-made tea. She passed the cup to me without sugar or milk, and I tasted it expectantly.

It was simply perfect. There was hardly more than two or three mouthfuls, but I supped it for about five minutes, during which time every draught seemed rich with a strong perfume. Like Oliver Twist, I asked for more; whereupon she removed all the tea grounds from the second kettle, and began all over again. I was informed that there was sufficient strength in the remaining tea grounds to make another cup if necessary, but the first perfect aroma was gone. No Japanese who understands the art will permit a second cup to be made out of grounds which have once been wet. The tea should be drunk immediately, and a fresh cup should be made whenever more is required. After each pot is made, and the grounds are emptied again for the next brew, the pot should be allowed to dry from the heat it has gathered during the process of making the tea. This precaution will be found wise, as it enables one to keep the tea dry until the hot water is ready to be applied. In no case should the water be boiling, as its action on the leaves will be too rapid, and the tannic acid will indicate its presence to the tongue, creating a taste that is not pleasant when one becomes a regular tea drinker. There are no harmful effects from tea drinking if the recipé I have given is carefully followed. It can be drunk at any and all times and at any hour. It will make your sleep peaceful, your hours of wakefulness pleasant, and your digestion regular. Never use sugar or milk, and above all things, do not steep it for a second.—*Scotsman.*

PRODUCE AND PLANTING.

THE IMPORT OF PRODUCE IN AUGUST.

The trade returns show that the import of tea for the month of August as compared with August, 1897, while higher in quantity, was lower in value. Cocoa, both raw and prepared, is lower in quantity and value.

TEA SHARES AS INVESTMENTS.

It was a lady client who hurriedly wrote to her broker last Friday saying that she heard tea shares paid such high dividends, and would he please buy her a pound at once, as she was afraid other people might have found out how cheap they were when everyone is bound to buy tea, &c. With this little prelude the *Westminster Gazette* discusses tea shares as follows: "It is certainly a little surprising that the market for tea and coffee shares should be such a restricted one, for the yield to be obtained ranges from £3 17*s.* 6*d.* on Singlo to 12½ per cent. on Dumont Preference. But the industry is such a fluctuating one, in view of the climate and other natural conditions of the countries where it flourishes, that there is more than an ordinarily speculative risk which must be accepted by the tea shareholder. The last meetings held by the companies, for instance, were almost unanimously doleful, earthquakes, the price of silver and the alluvial difficulty having played havoc with the profits; but if an investor is prepared to 'stand the racket' of a speculative share for the sake of the interest that it yields, perhaps he might profitably turn his attention towards the tea gardens of Ceylon, India, and Burmah. Another great difficulty which the companies have to face is that of obtaining fresh for the sale of their produce, but we imagine that in these commercial activity, an ever-increasing attention will be pr devoted to this side of the business."

THE PARIS EXHIBITION.

The French authorities are not particularly friendly toward and the Colonies in the matter of space at the forthcomin Exhibition. It is assumed that they are jealous of Colonial The space offered is quite inadequate, and there is no mov French authorities to grant more at present.

ALLEGED ADULTERATION OF CHINA TEA.

A case of alleged adulteration of "caper" tea was recentl at Manchester, when a grocer was charged with the offe sample of tea retailed by the defendant was certified by t Analyst to contain 2¼ per cent. of foreign mineral matter, pri sand and ferruginous earth. It was not alleged that the matter was injurious. The defendant denied all knowledge part that the tea was adulterated. He suggested that the had made a mistake, and asked that a sample might be Somerset House for analysis by the authorities ther magistrates acceded to this application, and adjourned the a month.

LAST WEEK'S TEA MARKET.

The improvement in the demand for Indian teas, says the *Markets Review* of last week's tea sales, is well maintained, bidding at the public sales was active for good medium descriptions. Although the latter formed a somewhat lar portion of the supply, prices were on the whole about on a p those of last week, the only difference of importance being showing less desirable quality, which sold irregularly and m buyers' favour. The few finest Darjeelings continue to m active competition, and values have shown a rising tendenc the finest lines of Assam have sold at very firm prices. In t lower grades, which are coming forward more freely, a good b has been transacted, parcels giving a good infusion fetchi previous rates, but those showing any deficiency in charac ing at a slight reduction. Common teas, mainly consi Sylhet and Cachar growths, were but moderately bid for many cases lower quotations were established. If a contin large supplies of these kinds arrive, and judging from the reports this is likely to be the case, a still lower range of pric be expected. The quantity of Ceylon tea brought forward ha been large, but the supplies continue to be well taken by th and no adverse effect on prices was noticeable, former rat well maintained for all the lower grades, while the medi better sorts were difficult to obtain except at an advance. Pekoes showing a little extra colour in cup were much soug and the few parcels on offer met with keen competition and extreme prices. Inquiry for the finest grades still contin high rates are freely given for any teas of showy appearance less of real quality in liquor.

PLANTING IN THE WEST INDIES.

Steps are being taken in some of the West Indies to rep sugar industry. In St. Vincent, cocoa planting is making headway, tobacco is grown with success, and there is a local for the beginners; coffee cultivation is gradually increasi arrowroot and cassava starch are grown with profit. In so of the Colony of Grenada, cocoa and coffee promise well.— *Mail.*

GAINERS BY LOW EXCHANGE.

Mr. Robert Gompertz was the first critic of our recen on "Gainers by Low Exchange." His ideas are revealed i lowing extracts:—

So long as the rupee retains *in India*—as it does at p much the same relative value with regard to Indian that it always has done, I maintain that *it is* a *most* absurd to ask producers whether a two-penny rupee (if such a thi reasonably possible) would be more profitable to them tha rupee. In other words, whether they would rather hav hundred or twelve thousand rupees for their £100 worth

PLANTING BOOKS.

Map of Ceylon Tea Estates Rs.9; colored Rs.10; Mounted in case Rs.14. Map of Ceylon Plantations, Plain Rs.8. Inga Va, Rs.2-8. Areca Palm, As.12. Cocoanut Planter's Manual, Rs.4-10. Ceylon Manual of Chemical Analyses, Rs.3-10. Tobacco Cultivation, Rs.3-10. India Rubber (now in the Press). Coffee Planter's Manual (now in the Press). All about Spices, Rs.3-10. Coffee Tree and its Enemies, Rs.1-8. All about Grub, Rs.1-5. Brazil as a Coffee Country, Rs.1-8. Cardamoms, Re.1. Ceylon Coffee Soils and Manures, Rs.1-9. All about Aloe and Ramie Fibre, Re.1. Estate Buildings, Rs.4-4. Coffee and Chicory, Rs.1-13. Coffee Cultivation in Ceylon, As.5. Tea Cultivation and Manufacture, As.5. Tea Cultivation in Ceylon, As.6. Tea at high elevations in Ceylon, As.3. Manuring of Tea Estates, As.8. To Economise Labour Supply, As.12. Planting, Pruning and Preparation of Tea, As.12. Salt for Agriculture, As.8. Cocoa, Cocaine and its Salt, Rs.2. On the Importance of Lining, As.4.

Apply "Observer Office,"
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MILLIE & REDMOND, late P. THOMPSON & CO., *Ootacamund, Engineers and Contractors.*

nd I see no reason why, if Government would cease to tamper with , the value of silver (or even of the rupee) in India should be much ore seriously affected by the price of gold than by the price of amonds . . . . *Planting Opinion* wants "an explanation" of the fact at whereas a 16*d.* rupee represents a tax on producers of 40 per nt., nothing like a tax of 40 per cent. on exports has ever been sug-ested to meet the deficit that a natural rupee would cause. The xplanation is extremely simple. The exports are worth about 108 rores of rupees; the loss to Government would be about 15 crores. tax of about 13½ per cent. on 108 crores would be sufficient to ake up this loss; and the whole of the 40 per cent. tax at present vied now goes into the pockets of the silver-using countries who ompete with the Indian producer. It is more than probable that, as *lanting Opinion* prophesies, Government would step in at the next ssessment, and deprive producers of excessive profit. It is right nd just that it should do so. The export duty would then be emoved; and if Government took its share of the profits no one ould have a right to complain. All classes would benefit by a ealthy and prosperous Government. The permanent settlement as a mistake, but it has been generally considered irretrievable. nother terrible mistake, which happily is *not* irretrievable, is that ome people will treat silver and gold as if they were on a totally ifferent footing from all other commodities. If it were but generally dmitted that Government had no more right to attempt to fix the gold) price of the rupee than that of the quartern loaf, I think we hould be within measurable distance of the solution of the great xchange problem.

An "explanation" of this sort is to our minds a mere *ipse dixit,* nd, as such, not worth discussion apart from other phases of the urrency question. For the rest, if Mr. Gompertz means, as his ords would imply, that gold and silver, even while used for currency urposes, should be regarded as entirely on the same footing as other ommodities, discussion of the Currency question with him could carcely lead to a result satisfactory to either party. He does not, will be noted, give any idea of what he thinks might be regarded s the probable *minimum* value of the rupee, for purposes of rgument, nor, while dismissing the permanent settlement as an retrievable mistake, does he consider our suggestion that to allow xchange to stand at a very low level might be to intensify that istake very seriously, and to multiply the losses it has un-uestionably inflicted upon the Government.

"Observer" has also stated that he does not agree with us, but it s difficult to understand why, for he starts by saying:—"The uestion of the currency of a country is on a much wider basis than s effects upon any particular class of the community." That is xactly what we sought to show, among other points. "Observer" eclares that "under a depreciated rupee the country gained," but e submits no proof, no evidence. His remarks about the "balance of rade," as it is usually called, are of a character to provoke ridicule on he part of the modern school of political economy. Letting that pass, owever, we need only remark that if "Observer" can prove that the ainers by low exchange are the people, or what our correspondent erms "the country," it seems to us that he will at the same time stablish another of our points, viz., that the gain made by the people enerally is in the case of holders of land under the Permanent ettlement enormously enhanced. If "Observer" does not agree ith us in this, his explanation would be of very great interest to us nd, in all likelihood, to many of our readers.

THE JAVA QUININE FACTORY.

AFTER writing on this subject in our last issue, we came across an rticle in *The British and Colonial Druggist* that confirms much f our remarks, and explains some points on which we have merely touched. It should have been reproduced in the same issue as our remarks, but was unfortunately held over by the printers. Our contemporary writes:—

Mr. Van Prehn, who has the technical control of the Bandœng quinine factory in Java, has addressed a letter from the Hague (where he has been staying during a part of his sojourn in Europe) to the director and board of the Company owning the factory, protesting against the treatment he has received. His letter throws light on recent events in Java, and will be taken by some as another piece of evidence in support of the theory that the Dutch cinchona planters will never be able to agree on a scheme for their common protection. Whilst Mr. Van Prehn has been in Europe trying to come to an arrangement with the German quinine makers, his conduct in other respects has been severely criticised in Java. We will give extracts from his letter, which will reveal the state of affairs between the various parties.

Mr. Van Prehn says:—

I was affected in a most painful manner on learning the numerous complaints and reproaches cast at me insinuating that I had acted, and was still acting, in opposition to the true interests of the Bandœng quinine manufactory. On numerous occasions, Mr. Van Heeckeren, in consultation with myself, drew up sundry draft contracts and distributed them amongst the cultivators of cinchona bark; according to the terms of these contracts, the latter were invited to undertake to deliver yearly a certain quantity of cinchona bark to the Bandœng quinine manufactory for the purpose of having quinine manufactured therefrom.

The producers, however, found they could not agree to the terms of (the last) contract, and consequently we do not receive a single offer. Many of them were unwilling to agree that these quinine should be consigned to a firm nominated by the Bandœng quinine manufactory without any consultation on its part as to the wishes of the owners of the quinine. I was, moreover, unable to agree to the compulsory obligations which it was sought to impose upon the planters. Besides these, there were several other conditions which did not suit the interests of the producers. As a rule the sale outright of the raw material was preferred to the manufacturing of the same against payment of a stipulated price, with settlement at the end of the working year. Even the offer of an advance of 8 florins per kilo of sulphate of quinine had no attraction for them. Many would have nothing to say to an advance, and demanded earlier and quicker settlements. That several planters accepted this advance was entirely owing to my efforts. I saw that it would happen that many planters after the first trial consignment would send no more cinchona bark to our factory, especially when a rise in the price of the bark clearly showed that the sale in the form of bark in Amsterdam was to a considerable degree more profitable than the manufacture in Bandœng with subsequent delayed settlements. Besides all this, reports were circulated that others proposed to establish factories to compete with the Bandœng manufactory and which would buy the bark. I allude to the Pengalengan manufactory, which declared that it had a million florins disposable wherewith to buy bark, and pay for the same on the spot.

Another project was that of Mr. Van Meeverden, who was already in correspondence with, and in negotiation with Mr. Henny, of Batavia, with the idea of

BUILDING A QUININE MANUFACTORY,

and of buying the bark. Under these circumstances our Bandœng manufactory, with its scheme of manufacturing for a stipulated recompense, could not continue to exist.

The scheme was a source of unceasing remonstrance and complaint; first one about a difference in weighing the bark, then another about the result of the analysis, and yet another about the time of settling and the pecuniary circumstances. For example producers who had given in their bark when the price was six cents were not very well pleased with a final settlement on the basis of a lower average price, &c., &c. The scheme when in operation was both unsatisfactory to the manufactory, and aroused dissatisfaction and complaints with the producers. I thought, and I am convinced, that I acted in the interests of the manufactory when I made, with a few favourably-inclined and independent planters, arrangements which enjoyed their favourable consideration.

I will refer to a paragraph which can be read in the circular of Messrs. Kerkhoven and De Vries:—

"Three-fourths of the cinchona produced by Java will go in the usual manner to Europe and be manufactured there into quinine for the consumption of Europe, America and Africa. The remaining fourth part will be manufactured in Java for consumption in Asia

and Australia, &c." When one of the Messrs. Kerkhoven asked me what I wanted for myself, I replied that I did not stipulate for anything for myself, and I only solicited their co-operation in order to save the shareholders in the Bandœng quinine manufactory from loss and injury. I have chosen to enlarge thus upon this matter, because a fourth part of the early production of cinchona bark in Java represents twice as much quinine as the factory can at the present time turn out in a year.

Thus I succeeded in rendering all competition on the part of others in Java impossible, because during the period the factories were in course of construction there would be no occasion to buy any bark, and at the same time the Bandœng manufactory secured an ample supply of the raw material and a ready market, free from competition, for the manufactured article in Asia and Australia. With a view to extending the factory, a larger site had to be looked for, especially as many complaints were forthcoming with regard to the pollution of the water that flowed through the towns, and was injurious to the fish-ponds.

It is my firm conviction that the plan, according to which the working of our factory is carried on, is not a plan conducive to the interests of the producers, and, as a direct consequence, is likewise not conducive to the interests of the shareholders. Now what is

THE ACTUAL STATE OF AFFAIRS?

The manufacturers of quinine, who will be only too pleased if they can succeed in rendering the manufacture of quinine in Java an impossibility, have recently raised the price of the cinchona bark, and lowered the price of the manufactured quinine to such a degree that the producers find it more to their advantage to sell their produce in the form of bark than to have it manufactu Bandœng, and then to sell it in the form of a preparation manufacturers can always effect this with loss, or, at any without only a slight loss for a short time. Planters naturally to send their bark to Europe, and our factory without a supply necessary raw material must necessarily cease to exist, after the manufacturers are masters of the situation, and the pro are ultimately the victims and bear the loss.

Mr. Van Prehn concludes by saying the Bandœng factory not cease to exist, but must rather be enlarged and furnishe the very best machinery, as well as with an expert special manager, so as to manufacture as well and as cheaply as in E The factory should pay for the raw material at a price corres ing to the prevailing price of the sulphate of quinine, an cinchona producers should possess at least half of the shares factory.

Since his return to Europe he says he has done much to f the interests of the factory and of the producers, but he canno will not, publish what he has already done and effected i direction, but he says that he has every reason to be satisfied wi results obtained.

He says he is in a position to declare that his efforts to im the condition of the producers and to maintain the life o Bandœng manufactory have not been without success, tha the co-operation in the Netherlands of sundry parties interes the cultivation of cinchona.

For all these reasons he asks that the vote of censure shou withdrawn.

FRESH STORES.

A large Consignment has just been unpacked consisting of Oilmansto Tinned Provisions, Luncheon Delicacies, Jams, Crystallized Fruits; a good assortm of Cadbury's Chocolate Drops, Gruyer Cheese, &c., &c.

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[w.—3-9-98—t.f.o.]

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CELEBRATED OILMAN'S STORES.

[w. 1-10-98—t.f.o.]

CEYLON TEA COMPANIES.

Extracts from Reports.

The Putupaula Tea Estate Company, Limited.—Tea in full bearing, 421 acres; tea in partial bearing, 36 acres; tea in new clearing for Para and tea, 4 acres; Liberian coffee and Para 10 acres; forest, grass, &c., and waste land, 228 acres—grand total 699 acres. The crops amounted to 162,113 lb. tea against an estimate of 170,000 lb. The nett average price realised was 34·63 cts. per lb.

The season has been an unfavourable one for tea, the bushes suffering greatly from drought in the early part of the year. The short fall in crop must further be accounted for by the necessity of having to allow certain fields to run on without pruning to equalize pruning periods. No manuring operations have been carried on during the past season, but it is proposed to treat 50/100 acres this year.

The Directors arranged for a loan of R15,000 bearing interest at 7 per cent., allowing, as security for repayment, a mortgage over the Company's property to be executed. The nett profit for the year amounts to R14,154·64 and with the balance brought forward from last season, the balance at credit of Profit and Loss account amounts to R21,941·58. The Directors recommend that a dividend of 7 per cent. be paid absorbing R14,000. R4,000 be placed to reserve fund, and the balance R3,941·58 be carried forward. The estimated crop for the current year is 175,000 lb. on an estimated outlay on working account of R38,618.

The Doomoo Tea Company of Ceylon, Limited.—The quantity of tea received from the two estates was 205,902 lb. against 170,000 lb. estimated, and the price realized for that sold was 43·13 cts. per lb. against 49·43 cts. last year. During the year an interim dividend of 3 per cent. was paid absorbing R12,000·00, and after writing off R1,745·82 for the remaining balance of preliminary expenses and transferring R2,500·00 to depreciation account, there is a sum of R14,400·01 available. This amount the Directors recommend being disposed of as follows :—That a final dividend of 3 per cent. (making 6 per cent. for the year) be paid on the capital of the Company, absorbing R12,000·00 and that a balance be carried forward of R2,400·01. Total R14,400·01. The estimate of crop for the current season is 220,000 lb. tea and the estimated expenditure is R72,946·00, which includes a sum of R6,500·00 allowed for cost of new machinery and factory alterations on Verellapatna. The acreage of the two estates now stands as follows :—Doomoo— 210 acres tea 5 years old and upwards, 3 acres tea 2 years old and upwards, 28 acres timber, and 58 acres grass land. Total 299 acres. Verallapatna—310 acres tea 5 years old and upwards, 35 acres tea 3 years old and upwards, 120 acres tea 2 years old and upwards, 35 acres tea 1 year old and upwards, 24 acres under 1 year, 10 acres grass land, and 154 acres waste and chena, Total 688 acres.—The dividend of 3% recommended was declared.

The Alliance Tea Co. of Ceylon, Ltd.—The Agents and Secretaries in Colombo have received a telegram from London stating that the Company have declared an interim dividend of 3 per cent.

COFFEE PROSPECTS IN LONDON.

A steady market is again reported from London, with auctions consisting mainly of ordinary and low middling qualities, which realized about previous rates. As regards future prospects, a London trade paper recently made the following interesting remarks :—

In one of our recent issues we gave a short report on the prospects of the growing crops on the Malabar Coast of India. The communication we had to convey has apparently met with some interest, for we have been asked by several members of various branches of the East Indian trade to keep them well posted with regard to developments in those districts in which they were particularly interested. In compliance with their request we are to-day in the position to state that we have since received full confirmation of the unfavourable reports regarding the strength of the monsoon to which we have recently given circulation. It appears that the monsoon has been very unsatisfactory in every respect, but particularly some, and, we regret to say, the principal, coffee growing districts have cause to complain bitterly at the unfair behaviour of God Pluvius. He has apparently raised the hopes of planters at the beginning of the season in order to dash them to the ground about a month later. The splendid blossom of the coffee plants promised a brilliant yield, when just at the critical moment sharp showers—showers as they are only known in the tropics—practically ruined the crop. Especially Munzerabad, the principal district for native coffee, appears to have suffered severely, and as the principal supplies are drawn from that part, a crop failure there must necessarily affect the whole East Indian coffee crop. The Mysore districts appear to have experienced a little more luck, although they have not altogether escaped, the reports from there sound less gloomy than from Munzerabad; a fair Mysore yield, unless something unforeseen happens, may be expected. To form an estimate at this time of the year is necessarily very difficult, and therefore somewhat unreliable, but taking all the circumstances into consideration our Indian reporter considers an estimate of Native Coffee from North Coorg, Munzerabad and Mysore, of about 3,000 tons not excessive; in fact he is inclined to fix this figure rather as the maximum, and fears that as the season progresses lower estimates will be forthcoming. Last season happened to be a particularly unfavourable one, and then the total yield in the above-named three districts amounted to 2/2,500 tons only. South Coorg and Wynaad are expected—as far as it is possible to judge now—to total about 10,000 cwt. Small supplies, stiff prices, and we fear very little business, will be result of the unsatisfactory state of affairs in India. Had the London Coffee market maintained its strong position and 'bull' fever, the exorbitant ideas of Coffee planters on the Coast would have had a chance of being realised, but since 'bears' have superseded 'bulls' again in Rios and Santos, the outlook for a good business in fine coloured East Indian has become more gloomy. The possibilities of a Brazil crop of 8,000,000 bags we fear, are hardly favourable to a strong 'bull' movement, although prices are low, but a crop of 8 millions looks small at the side of the last yield of 10,500,000 bags. A great deal will depend upon the prospect of the next Brazil crop.

IRRIGATION AND FERTILISATION.

Writing from Inverness on "Periyar and Kurnool Irrigation," "A.T.F." makes in the *Madras Mail* some remarks that will interest planters. He says :—

The London Press had predicted that something startling would appear in Sir William Crookes's Address at Bristol as President of the British Association, and such turns out the case. Only no one would have thought the discoveries referred to are likely to cause a revolution in the financial prospects of two very important Madras irrigation works, namely, the Periyar Scheme and the Kurnool Canal. Grain crops depend for full ears and their starch and albumen on a due supply of "fixed" nitrogen in the soil. In fact, as the Address says, "the fixation of nitrogen is vital to the progress of civilised humanity." Everyone can see the pains the natives take to plough into the rice fields the leaves and organic substances which are to furnish nitrogen; and in European countries nearly a million and a quarter tons of nitrate of soda (worth £7 10*s*. per ton) are imported from Chili and put on the land, without the use of which the price of bread would rise. But the respite to civilisation is temporary, as after thirty years the Chili nitrate beds will be exhausted. There are, however, seven tons of nitrogen resting over each square yard of the earth's surface, and therefore there is a

The Wynaad and the Planting Industry of Southern India, by Francis Ford. Re.1.

The Planting Directory of South India for 1896. Re.1-8.

Sketch History of the Planting History of Wynaad, by the late Adolphus Arthur Wright. Re.1-8.

Report of Observations of Injurious Insects and Common Crop Pests during the year 1883, with Methods of Prevention and Remedy, by Miss Eleanor A. Ormerod, F.R.Met. Soc., &c. Re.1-8.

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vast store of it in nature. But it is slow work oxidising the nitrogen by the familiar processes of decay, and rendering it fit to be absorbed at the roots of plants. The chemist can now do it at once. Sir William Crookes in 1892 exhibited to the Royal Society a flame of nitrogen which had become combustible as the jet of gas passed between terminals conveying a strong induced current of electricity. The product of combustion is of course nitric acid with which "nitrate" can be prepared. Wherever there is water power electricity can be generated at a very cheap rate, or about 4 pies per "Board of Trade unit," which is $1\frac{3}{10}$ horse-power working for an hour. As the Periyar gives upwards of 5,200 such units hourly on the data of Sir W. Crookes's Address, nine tons a day of nitrate of soda could be manufactured at the foot of the Pulney Hills; or 3,000 tons a year, enough to give twenty-four thousand acres a full dressing of $2\frac{1}{2}$ cwt. per acre, value £22,500, and a windfall for the cultivation under the Vaigay in Madura. In the case of the Kurnool Canal, there are 44 locks with a drop of 10 feet at each, disposing of a large volume of irrigation water, carrying power through a length of 200 miles with additional sources of power at the head works and anicuts. The horse-power of all this has never been calculated out, because it was so improbable that it would have any commercial value in a near future, nor did the wildest imagination ever conjecture that it could be turned to account in fertilising the land the water irregated. There can be little doubt that before long the marvellous secret of how the passage of induced electricity lowers the combustion point of nitrogen, a gas that puts out flame rather than otherwise, will be penetrated. Means will be found to effect "fixation" at less expenditure than of 14,000 Board of Trade units to produce a ton of nitrate. There is consequently an era of great prosperity in store for our Irrigation works that have the water power able to supply the irrigated land with what Sir William Crookes calls "the dominant manure," and which will make the "low acre field" now so prevalent over the grain fields rapidly disappear.

CHINA'S COMPETITION.

Telegraphic advices from Calcutta, under date 6th instant, state:—

An important letter has been addressed by the Secretary, Bengal Chamber of Commerce, to the Bengal Government, asking the latter to depute an officer to proceed to China to make enquiries regarding the effect of the fall in the value of silver on production and prices, and the effect which this may be expected to have on exports from China in competition with those from India. The Committee has been led to prefer this request owing to the difficulty it has experienced in getting reliable up-to-date information regarding prices and wages in China, and the effect of the fall in the price of silver in respect to articles which come into competition with exports from India. The letter refers in strictly judicial terms to the serious fears entertained by some of those who gave evidence before the Indian Currency Committee that great and increasing injury was likely to be sustained by the tea industry in competition with China tea owing to the alleged advantage China has over India on account of the fall in the gold value of silver. After laying down the main lines on which the proposed enquiry should be conducted, the Chamber suggests that Mr. Frederick Atkinson, of the Financial Department, is a suitable officer to carry out the proposed enquiry.

The *Madras Mail* has the following interesting comments:—

It will be seen from a telegram we publish to-day that the Bengal Chamber of Commerce has written to Government asking it to depute an officer to proceed to China to make enquiries regarding the effect of the fall in the value of silver on production and prices, and the effect which this may be expected to have on exports from China in competition with those from India. The Bengal Chamber has been led to prefer this request owing to the difficulty it has experienced in getting reliable up-to-date information regarding prices and wages in China, and the effect of the fall in the prices of silver in respect to articles which come into competition with exports from India. After laying down the main lines on which the proposed enquiry should be conducted, the Chamber suggests that Mr. Frederick Atkinson, of the Financial Deparment, is a suitable officer to carry out the proposed enquiry. Apparently, however, the selection of Mr. Atkinson is not viewed with general favour in Calcutta. The Calcutta commercial correspondent of the *Pioneer* writes:—

Instead of selecting some one with commercial knowledge, they h am told, chosen Mr. Frederick Atkinson, of the Indian Financial Depart who is doubtless an able statistician, but is also a currency theorist. would have thought that commercial men had had enough of Gover statisticians in connection with currency matters. Doubtless Mr. A son could compile a very interesting statistical statement of China but is there any need that he should journey to China for this pur The mere fact of Mr. Atkinson's presence in China will not afford u more statistical data than already exists there, and this he might obt writing to the Chambers of Commerce and the various British Consu Further, the proposal to send Mr. Atkinson to China has, I be emanated from that section of the Chamber which is at present endea ing to persuade those interested in tea that an artificial one and four- rupee is not detrimental to the tea industry, and that that industry nothing to fear from competition with China—views which I am tol Atkinson also holds. However, it appears that application has al been made to the Government of India for Mr. Atkinson's services, I would be interesting to know if the Tea Association, apart from Sir Pa Playfair, are prepared to support or even to approve of Mr. Atkin mission to China.

That Mr. Atkinson is the best man available, or even that he suitable man for the task, we refuse to believe. Even by tho his own department he is not, we understand, looked upon as a reliable critic in economical and financial problems. Further his papers on "Prices in India" which we have recently reviewing in these columns contain so many inaccuracies, omis and erroneous deductions that his capabilities for the impo mission proposed by the Bengal Chamber of Commerce mus placed in serious doubt.

AN OPENING FOR INDIAN TEA.

It was probably never imagined that the Pomeranians especially a community of tea-drinkers. That was not the favo beverage of their illustrious patron who manifested such solici at a critical juncture in international politics, for the bones single Pomeranian grenadier." It is not a little surpri nevertheless, to be reminded that in the sturdy north-ea province of Germany tea, both as to cost and consumption, occ much the same place as it held among our forebears in the f days of Queen Anne. It is only of recent years, according t Consul at Stettin, that the cups which cheer but not inebriate captured the palates of the Pomeranians and their neighbours i ancient seat of the Prussian Monarchy. "There can be no do writes Mr. Consul Powell at Stettin, "that the taste for tea is increasing in this and other parts of Germany." Is the development carried on at the expense of lager, or schnapper, o mysterious distillation denominated as "loco spirit?" What ex is "loco spirit?" Has it anything to do with a hindrance o undue facilitation to locomotion? The year 1897, says Mr. Po began briskly for spirits, although only small supplies were off in the open market. It would seem, therefore, that tea has no supplanted spirits, "loco" or otherwise, among the rank and fi the populace.

A consular report, however, is nothig unless it be in some p informing and didactic. The days of Pope and Addison, and p cularly Dr. Johnson, with their dishes of tea, are again recalle the statement that the cost of the commodity in Stettin and neighbourhood restricts its use to the w ealtheir classes. It s incredible, when one considers the means of over-sea communic with the East, that the teas used in Pomerania are "mostly ca teas, imported from Russia." There can be little wonder that are limited to the use of the more opulent people when our C informs us that the prices range from 6 to 10 marks, or from 5*s.* to 9*s.* $10\frac{1}{2}$*d.* per lb. On this point Mr. Powell is usefully sugge and his remarks may be commended to the careful attentio Mincing-lane and its offshoots. "I am of opnion," he writes, " there is an opportunity for the introduction of Indian and Ceylon to this market—in the first place, because they are cheaper and ter than at present available; and, secondly, because as the tas so to speak, in its infancy, the liking for the more highly-flavo growth of India may be easily introduced. I understand, goes on to say, "that the cost of the retail price being so high consequence of the very limited demand and the length of time the tea is kept in stock before being sold. He is convinced, ever, that if a good tea, at a reasonable price, could be put upo

Pomeranian market, with a suitable agent to push the sale, the business would soon find considerable extension. There would be little difficulty as to the Customs rates. The duty on tea is charged at 50 pf. (6*d.*) per pound; thus a good tea could well be introduced here at a retail price of 3 marks (2*s.* 11½*d.*) per pound, or even less, with a considerable profit to the merchant." Then follows a pregnant saying: "The tea at present here sold at 3 mark (2*s.* 11½*d.*) per pound is not fit to drink, and it is doubtful whether it is tea ot all." But it will not be sufficient for a merchant merely to appoint an agent at Stettin in the hope of making business. It requires the service of a competent man, so Mr. Powell advises, who would create the business, as he must find his first customers among private families, "and he should be content to make a quite small begnning, which, as far as my present knowledge goes, would gradually create a taste for the teas of India and Ceylon."

Tea naturally suggests coffee, and coffee has hitherto rivalled spirits as the drink of the commonalty in the late Prince Bismarck's pet country. The imports rose from 77,306 metre-centners in 1894 to 82,950 in 1897. But last year resembled its predecessor in its unsatisfactory results to all concerned in the coffee trade. There is nothing new to readers of produce market reports in the announcement that the large crop produced in Brazil during the last two years knocked prices beneath respectable recognition, or anything like an acceptabe return on the capital employed in the industry. Yet, with tea missing and coffee unprofitable, it is evident that the United Kingdom has little to complain of in regard to its share of the trade of Stettin last year. The sea-borne imports to the Pomeranian entrepot amounted to 2,279,625 tons, the exports therefrom to 707,044 tons. Of this aggregate, although the tonnage of other nations collectively showed a decrease of 120,813 tons, British tonnage marked an increase of 22,002 tons. Similarly in respect of coal, for Mr. Powell's figures are not affected by the stupid South Wales strike. Great Britain exported to Swinemunde and Stettin 929,622 tons in 1897, as compared with 930,992 tons in 1896 and 837,437 tons in 1895 —*Financial News.*

THE CULTIVATION OF COFFEE IN INDIA.

THE following Report on Coffee Cultivation in India has been issued by the Director of Statistics to the Government of India:—

Area.

At the end of 1897 there were 276,074 acres of land under coffee in India, all, with the exception of 524 acres, in Southern India. The cultivation of coffee is in fact restricted for the most part to a limited zone in Mysore, Coorg, and the Madras Districts of Malabar and the Nilgiris. In Mysore there are 125,876 acres, in Coorg 86,155 acres, and in the Nilgiris and Malabar 38,201. If to these are added 7,624 acres in Travancore and Cochin, we find about 93·4 per cent. of the coffee-bearing area of India concentrated in the elevated region above the south-western coast where the rainfall is heavy and the climate generally approximates to that of the coffee-bearing area of Ceylon.

In the Madras Presidency coffee is not grown to any extent except in the two districts already mentioned, and in Salem and Madura. The only other Province in which coffee is grown, except experimentally or in trivial quantities, is Burma, and the cultivation there, which is mostly in Toungoo, is of recent origin and very limited in extent.

The area in Madras has contracted greatly in the last two years. In Coorg there has been a greatly expanded cultivation since 1894; in Mysore there has been a steady and considerable increase from 1889, the year in which prices took an upward turn, to 1896; but in 1897 there was a large decrease in the area under mature plants which is attributed to the dying or removal of old plants owing to their unproductiveness. Travancore and Cochin show some advance in 1897, but in the former state the cultivation of tea appears to be found more profitable than coffee-growing.

The largest part (nearly half) of the area under coffee is in Mysore; there is 31·2 per cent. in Coorg, and 20·3 per cent. in Madras.

Production.

The yield in 1897 was slightly in excess of 24 million pounds, being 7·8 per cent. lower than in 1896 and also lower than that of every other year since 1885 with the one exception of 1890. In Madras there was on the whole a slightly larger yield on a smaller area in 1897 than in 1896. In the Nilgiris there was a large apparent increase which is attributed to the planters having furnished complete returns, but there was a great falling off in Madura, Tinnevelly, South Canara, and Malabar, owing to want of sufficient and timely rain and to leaf disease. Want of rain and a reduction in the area planted also account for the very small crop in Mysore, which is less than one-fourth of the 1893 crop. In Coorg, where the outturn is calculated from an estimated yield per acre, the crop was better though still poor, and Cochin and Travancore also show better results.

Taking 100 to represent both area and production in 1885, the ratio of yearly increase or decrease is shown in the subjoined table:—

	Area.	Production.		Area.	Production.
1885 ...	100	100	1892 ...	110	97
1886 ...	97	90	1893 ...	109	109
1887 ...	103	109	1894 ...	117	101
1888 ...	104	76	1895 ...	119	115
1889 ...	110	85	1896 ...	121	75
1890 ...	114	63	1897 ...	116	69
1891 ...	111	113			

In 1897 the yield varied enormously in the different localities, the tables giving 512 lbs. in the Nilgiris; 369 lbs. in Burma; 142 lbs. in South Canara; 50 lbs. in Mysore; 98 lbs. in Coorg; 37 lbs. in Malabar.

There is doubt as to the accuracy of some of the returns as the planters are not always willing to give information.

Persons employed.

According to the returns there were, in 1897, 37,819 persons permanently, and 95,820 temporarily, employed on the coffee estates, making a total of 133,639 persons, which is equal to one person to 206 acres.

Exports and Consumption.

The following figures are the average of the five years ending 1897-98:—

Indian Coffee,	Production ... ...lbs.	32,748,344
	Exports ... ... „	28,822,954
	Left in India ... ... „	3,925,390
Foreign Coffee	Imports ... ... „	1,361,024
	Re-exports ... ... „	859,062
	Left in India ... ... „	501,962

It appears, therefore, that 88·01 per cent. of the production is exported, and that of the coffee consumed in India foreign coffee represents only about one-eighth the quantity of Indian coffee. The rate of consumption is about 0·015 lb. per head of the population.

The principal consumers of the 25,200,896 lbs. of Indian coffee exported in 1897-98 were:—

United Kingdom ... ...lbs.	12,773,376
France ... ... „	8,607,872
Asiatic Turkey and Persia ... ... „	863,856
Arabia ... ... „	630,896
Austria-Hungary ... ... „	591,360
Germany ... ... „	297,584
Ceylon ... ... „	293,888
Australia ... ... „	199,024

Prices.

There is no trustworthy or complete record of the prices in India of Indian coffee. The prices in London, in February of each of the last twenty-three years, of coffee (East India plantation) are here subjoined:—

	Per Cwt.		Per Cwt.
	s.		*s.*
1876 ...	100 to 116	1888 ...	74 to 95
1877 ...	107 to 122	1889 ...	87 to 110
1878 ...	96 to 122	1890 ...	97 to 110
1879 ...	91 to 112	1891 ...	102 to 115
1880 ...	94 to 115	1892 ...	101 to 112
1881 ...	75 to 108	1893 ...	105 to 118
1882 ...	62 to 105	1894 ...	94 to 109
1883 ...	60 to 106	1895 ...	96 to 112
1884 ...	68 to 103	1896 ...	95 to 110
1885 ...	54 to 95	1897 ...	98 to 115
1886 ...	54 to 105	1898 ...	75 to 93
1887 ...	75 to 95		

Ten years, from 1879 to 1888, of depressed prices, combined with the havoc wrought by the borer and the leaf disease, greatly discouraged coffee-planting in India and Ceylon, and the prospects of the industry seemed so forlorn that both in Ceylon and India much coffee land was placed under tea. In 1889, however, there was a sharp rise in prices, and the level has ranged high since that year under the operation of speculative corners, political troubles in Brazil whence the main supplies of the world are derived, and other circumstances. In 1896 prices receded to a lower level, owing principally to reports that the Brazilian coffee crop would be the largest on record; and after rising in 1897 they again fell greatly this year owing to the enormous quantities of Brazilian coffee which have been thrown on the market.

THE TEA INDUSTRY IN INDIA.

How to Make a Garden Pay.

[By Sirocco.]

I Have to thank "H. C." for his comments (in issue of 25th June) on my first letter, and also for the *pukka* information given. He shows clearly that some few concerns have still a large margin, others have enough life to keep up even a severe struggle, while the bulk of tea investments are decidedly shaky.

Exchange cannot go against us for long unless the rise is *bonâ fide*. If it is bolstered up by any interests, however powerful, it is impossible for our nation to permit any lengthened run of injustice. And if exchange is in its legitimate state and remains high, we shall find means to counterbalance the odds against us. But this is all outside my province. I know the bush and the cooly and the practice of tea, and I say that we have much room for improvement.

With new conditions we must change our customs and throw prejudice overboard. "Prejudice" I take to be the collective experience of former days. In the matter of plucking tea leaf we *must* change our systems because the conditions are changed.

Up to the present year medium leaf would pass muster and pay for its manufacture. Now there is so much tea made that medium leaf will make about an average of 5 annas, which barely pays expenses. And so for a time those who wish to pay expenses (let alone making a profit) *must not* pluck medium leaf. Any tea that will *pay* this this year (of 1898) must be strictly of two leaves and the bud. Admitting this to be true, the bulk of planters will give up all hope of making tea pay. It was not until I gave up here myself (some four years ago) that I found out the way to make my garden pay. I got desperate, I "plucked fine" and I succeeded. But I had to heave overboard my old prejudices, founded (as I said above) on my experience of twenty years, and the universal custom of tea planters.

And now I will tell you how to pluck fine leaf, and yet get nearly the same yield as if you plucked medium or coarse leaf. You must abandon the idea that it is *necessary* to leave one leaf on the shoot plucked, in order that it may send out a new shoot from its axil. My system is to leave a good growth after pruning, and after that *to take every shoot right off at the root as soon as it has got two leaves and a bud*, and it is necessary to pluck round the estate in five days, beginning again on the sixth day. Going round in four days will give better results, but very few estates have sufficient labour to do this. You must divide your estate into five equal blocks, estimating the yield rather than the area. Thus you have—

No. 1	plucked on Monday.	No. 4	plucked on Wednesday.
„ 2	„ Tuesday.	„ 5	„ Thursday.
„ 3	„ Wednesday.	„ 1	„ Friday.
„ 4	„ Thursday.	„ 2	„ Saturday.
„ 5	„ Friday.	„ 3	„ Monday.
„ 1	„ Saturday.	„ 4	„ Tuesday.
„ 2	„ Monday.	„ 5	„ Wednesday.
„ 3	„ Tuesday.		

Each day the block appointed for that day must be finished. The pluckers can take any leaf shoot, but they must leave the one leaf shoots, and if by chance a shoot has been skipped before and has four leaves on it, two leaves must be left. You will find in practice that because *very many* shoots are skipped there are quite enough axils left to give continuous flushes, and if by design no axils have been left, and the bush wants to grow, it will force a new sho from the same axil as the one that was removed. I cannot that many will have sufficient courage to adopt this plan o whole estate, but it is really the only means by which a mode well-founded estate can hope to keep afloat. I am, techn speaking, advising planters to "overpluck" their gardens, hold that it is impossible to really overpluck unless you have three pluckers per acre. If your bush is covered with leaf, yo safely remove every new shoot as it appears, and so give it growth after pruning; and after that take all you can get.

The salient point and advantage of this system is that you d hamper your pluckers. You can safely leave them unguarded a if you examine their baskets at the tea-house door to see tha have taken no old leaf, no one-leaf shoots and no bhanji s The weight of good leaf brought in will tell you whether they worked hard or lazily.

Under the present system (I exempt Kangra and other up-co gardens) the cooly has to examine each shoot, and has to be c to have one leaf (at least), and this hampers them so much tha cannot work freely. Remove this restriction and you will fin they will bring in nearly as much absolutely fine leaf as they do of medium leaf. You bushes will grow in spite of you days, *puja* days, &c., will put your plucking back and you will to leave a leaf on the shoots. When a *puja* is coming on you s pluck round in three days, taking only the best leaf, thus incl the two holidays and beginning the new round on the prope There are numerous advantages in my plan. The pluckers get efficient when they find that you press them for leaving too leaf rather than for taking too much. If you go round in five the leaf has not time to get too long. Long shoots are the exce and so it is nearly impossible for the pluckers to find any ol You get also several more rounds of plucking in the year. need not look at your bushes—you regulate the plucking at th house door; if on going round you see that your force is una take off all the ready leaf, you must put on the men and boys. a fairly vigorous garden and a good labour force, it will n necessary to take a single open or *bhanji* shoot all the year r These open shoots give the bush all it wants in the way o returned to the stem and branches. The greatest benefit c obtained from this system by leaving the bushes unpruned fo year, *i. e.*, two years between each pruning, because hard pluckin begin in February and continue to December in the second ye growth. I think that this accounts for the large yields in Cey

Briefly, the orders should be to pluck every shoot as soon as ready, to abandon everything more than two leaves and a bud, not to take open shoots. Leaf like this will make good tea, a will take less withering space. If you want really perfect leaf, very large force and pluck round in four days; this would mak best of tea. If you can't get enough labour to get enough good then abandon a part of the estate, cut down supervision, both N and European, and hang on in hopes of better days. My idea is the universal adoption of this system of plucking will give a sli reduced outfit: sufficient in itself to check the fall in prices. quality will be so much improved that our tea would force open markets and oust all competitors, and then we shall settle down steady 10 to 8 per cent. All the bad properties will have imp or closed up, and the returns from tea will not be sufficiently bri to induce the present exaggerated competition. I have given ideas, at much risk to my reputation for sanity, with the ho showing investors that we planters are not at the end of our re ces, and that concerns not yielding much return now may pos be brought to give good profit even if there is no rapid rise in p For planters we must have a new maxim: "Hard leaf is better o bush than in the tea-house." The third leaf now is poison to prices. Don't hamper your pluckers. The bush will yield all can take if you let them take it unconditionally. I would investors to question us in your columns. "H. C." and mysel give two views; he will show all that we have to fear, and I show all that we have to hope for. I know planters and tea so that I am sure that we can weather this storm, and that all wh will fail for want of "management" and not because "tea" is a last gasp.

I am prepared to reply to any theoretical opposition, becau give advice from "practice" carried out successfully for several y My bushes improve year by year, and I have absolutely no tr with my pluckers.—*Pioneer*.

DISTRICT ASSOCIATIONS.

WYNAAD.

Proceedings of a General Meeting held at Meppadi on 7th eptember, 1898.

Present.—Messrs. H. Atzenwiler, E. H. F. Day, A. C. Glenie, . W. Hockin, R. Lamb, W. Mackinlay, D. Mackenzie, J. S. Malcolm, . S. Nicolls, G. Romilly, S. Robinson, M. D. Taylor, H. Waddington, nd E. deFonblanque (*Honorary Secretary*).

Chairman.—

Read letter from Mr. R. K. Walker resigning the chairmanship wing to his having to leave for England.

Proposed by Mr. H. Waddington.

Seconded by Mr. H. Atzenwiler.

That Mr. Hockin be elected Chairman during Mr. Walker's bsence. Carried.

Proceedings of last Meeting.—

The Proceedings of the previous meeting were taken as read.

Sultan's Battery Post Office.—

Read letters from the Postmaster General, Madras. Recorded.

Pudu Padi Hotel.—

Read letters from Mr. T. J. Ferguson.

The Secretary was requested to write for further particulars on he subject of the mortgage on the hotel and the funds in hand.

Roads.—

Read letter from Chief Engineer, Mysore.

Proposed by Mr. H. Waddington.

Seconded by Mr. R. Lamb.

That the Association point out to the Chief Engineer that the ight (8) miles (133—141) remaining unrepaired make it impossible or carts to carry full loads over the whole road and requests that the matter receives his early attention. Carried.

Nellakotta-Sultan's Battery road.

Proposed by Mr. H. Waddington.

Seconded by Mr. H. Atzenwiler.

That the attention of the President, District Board, be called to the almost impassable condition of the Nellakotta-Sultan's Battery road at Miles 21½, 22½. Carried.

U. P. A. S. I.

Mr. Hockin, the delegate of the W. P. A., read a report on the work of the U. P. A. S. I. at the annual meeting.

Proposed by Mr. D. Taylor.

Seconded by Mr. H. Atzenwiler.

That a vote of thanks be accorded to Mr. Hockin for his services at the U. P. A. S. I. Meeting. Carried.

Proposed by Mr. R. Lamb.

Seconded by Mr. S. Robinson.

That Mr. Hockin's report be printed. Carried.

Read letter from Secretary, U. P. A. S. I., enclosing copy of letters from Traffic Managers of Railways in S. India.

Resolved.—

That the Secretary, W. P. A., be requested to write to the Agents of Estates in the district to ask them whether they consider the correspondence satisfactory.

Plague.—

Read letter from the Collector of Malabar on the subject of the plague.

Proposed by Mr. G. Romilly.

Seconded by Mr. E. deFonblanque.

That the Collector be thanked for his letter, and be informed that this Association will be very glad to assist in the manner suggested; but that its Medical Officer, Dr. Barboza, has left the district owing to illness, and until his return the Association will be unable to carry out his wishes unless a Government Medical Officer can be lent *pro tem.* for the purpose. Carried.

Administration of Wynaad.—

Absence of the Deputy Collector.

Proposed by Mr. H. Waddington.

Seconded by Mr. W. Mackinlay.

That this Association strongly protests against the repeated absence of the Deputy Collector from this District on duty elsewhere, when (as we understand) there are already large arrears of business in the Taluq; and the delay complained of early in the year with respect to business with the RevenueDepartment is increased by all such matters now having to be sent to Cochin; and that there being no First Class Magistrate in the district has already resulted in loss without a chance of redress to Members of this Association. Carried.

Notice of Sales Estates—

Proposed by Mr. H. Waddington.

Seconded by Mr. G. Romilly.

That the attention of the Collector of Malabar be called to the fact that estates and property in Wynaad are being sold for arrears of Revenue, although no notice of such sales has appeared in the District Gazette as supplied to subscribers. Carried.

Non Service of Warrants issued under Act 13 *of* 1859.—

Proposed by Mr. H. Waddington.

Seconded by Mr. G. Romilly.

That particulars of these cases be published in the Proceedings and the attention of the District Superintendent of Police be called thereto. Carried.

A vote of thanks to the Chair closed the Proceedings.

E. deFONBLANQUE,
Hony. Secy., W. P. A.

REPORT OF THE WYNAAD DELEGATE TO THE U. P. A. S. I. MEETING.

Held at Bangalore, August 8th to 12th, 1898.

Mr. Chairman:—

The Proceedings of the U. P. A. S. I. are so fully reported in the papers that there is not very much left for me to report that you are not already aware of. You will have seen Labour and Currency matters are still under consideration. The U. P. A. S. I. has said all it has to say on these subjects, and can only now await the orders of Government. Both Mr. Romilly and myself did our best to draw attention to the inadequate grants for the upkeep of our roads. There are three subjects to which a good deal of attention was devoted of which I see no notice in the *Madras Mail*. These are the improvement of the strain of coffee, the employment of an Agricultural Chemist, and the importation of Lady-birds to combat scale insects. The debates on these subjects will be fully reported in the U. P. A. S. I. proceedings for 1898, and I hope members will procure copies of these proceedings to make themselves thoroughly acquainted with the views expressed, and the information given of experience gained, on these important subjects. I will, however, give you briefly the results of these debates, Coorg has arranged to carry out a series of experiments for the purpose of improving the strain of coffee and applied for permission to draw against the grant of Rs.1,000 from the Reserve Fund voted last year to pay Mr. Cameron's expenses. I supported this proposition as I thought that as only one district had taken the trouble to arrange for a series of experiments under Mr. Cameron's guidance, it was fairly entitled to the use of the grants, more especially as we shall all benefit by the results which will be reported to the U. P. A. S. I. There was, however, some opposition to one district claiming all the grant and eventually a compromise was come to that Coorg should be allowed to draw what was needed up to one half the total amount of the grant. As regards an Agricultural Chemist the Mysore Govt. agreed to pay its share of the cost of his services, if the U. P. A. S. I. and other Govts. concerned would also contribute. It was resolved the U. P. A. S. I. would pay Rs. 2,000 and the other Govts. should be invited to contribute. Since however I understand the Mysore Govt. has generously offered to pay the whole cost of the services of the Chemist recommended, reserving of course his services for Mysore. In striking contrast to this enlightened policy, the Govts. of India, Madras, and Travancore and Cochin have, I believe, refused to contribute at all. All Colonial Governments employ trained experts to develop their industries, and the U. S. Govt. spends some 7,000,000 dollars a year on a regular service of Botanists, Entomologists, Chemists, & other experts, who are constantly employed in experimenting with new products and manures, and in advising how to combat blights. Yet the Government of India, which depends so largely on agriculture for its revenue and the support of its subjects, absolutely refuses to do anything of the sort. With regard to the importation of lady birds there is a balance of some Rs.1,200 in hand of the funds obtained for this purpose; but it was resolved to suspend further action pending the acquisition of the necessary information on the thawing of lady birds, and other ways of exporting them than on ice. An attempt is to be made to get them to Ceylon in Wardian cases, which, if it succeeds, will make the matter very simple. I put down the cultivated area of members of this Association at 12,000 acres (which is I think about right) for purposes of

assessment, but it would be well next year to have an estimate carefully formed before the delegate goes up to the U. P. A. S. I. meeting. I also agreed to endeavour to get members to furnish estimates of tea crops and monthly returns of shipments of tea. These are returned by the Indian Tea Association and the Ceylon Planters' Association, but none are sent in from Southern India, and the London brokers have asked the Indian Tea Association to furnish them. I hope members interested in Tea will furnish the necessary estimates, and we might arrange with the agents to send monthly returns of shipments to the Secretary, U.P.A.S.I. I think we may congratulate ourselves on another very useful and successful meeting of the U.P.A.S.I. and also on the attention paid to subjects connected with the improvement and development of our industries, as opposed to what may be called the politics of the U. P. A. S. I.

J. WILLIAM HOCKIN,
Wynaad Delegate to the U. P. A. S. I.

Non Service of Warrants issued under Act XIII. of 1859.

The following cases were brought to the notice of the Association.

Coimbatore District:—

A warrant for arrest of Karuppa, Tamil Maistry of Kodumudi, Coimbatore, was returned endorsed "not to be found"; a money order sent at same time was delivered without delay by Post Office.

Bangalore District:—

A similar case to above, Warrant for arrest of Maiga, son of Maiga Canann of Old Troop Line, Closepet, Bangalore, was returned "Accused not to be found," although a money order sent by his coolies was delivered without delay and receipt received.

1. *Malabar District*:—

Warrant for arrest of Kunji Karder, son of Abdoola Moplah, Ponani Taluq, Keermuri Amshom, Meyalmuri Desam, Puthanpeediyakkal, remains unexecuted; the police report they are unable to find accused, who however writes complainant he has been informed by Adigari a warrant has been received for his arrest.

2. Warrants have been repeatedly sent since July 1897 for arrest of Bastian D'Cruz of Calicut, a well-known figure at Malabar Club and member of local Volunteer Force. In reply to a complaint made on 8th Jany., 1898, the report on the case by Inspector R. M. Lafrenais endorsed by the Supt., "No neglect on the part of the police" was received. The report is, however, misleading and not in accordance with facts of the case. Accused is frequently seen in Calicut.

3. Warrant issued for arrest of Madambi Kanakan on Kuppamudi Estate was received at Sultan's Battery on 4th Aug. brought to Estate on 15th with explanation that the Estate Writer and Mr. Waddington's butler had advised it should not be served during his absence. Accused obtaining notice absconded on 7th. Warrant endorsed asking explanation as to why representation of a Writer &/or butler had been allowed to stand in the way of execution and why warrant was not served on 5th or 6th August. It was then found warrant was endorsed by P. C. No. 244 that he made enquiries on the Estate on 5th and in proof produces his beat book signed by Mr. Rozario, the Kuppamudi Writer, on that date. This signature was obtained at the village of Sultan's Battery 3 miles from the Estate on Sunday, 7th Aug. Enquiries made show it to be a common practice of the Police to obtain signatures of Estate Writers when they are at the bazaar on Sundays. It was impossible for any enquiries to have been made of Mr. Rozario without the knowledge of Mr. Waddington as he with accused was under immediate observation the entire day of 5th August.

MARKET REPORT.

COFFEE.

Messrs. R. J. Rouse & Co's Weekly Coffee Report (*September* 16, 1898) says:—Public Sales have been on a slightly larger scale this week, but the tone was quiet for every description, except the colory grades which were disposed of in seller's favour.

About 1,700 bags East India were offered consisting partly of second hand lots which met little demand but the rest sold steadily at about previous rates.

The fine bold colory qualities of Central American realised very full prices, but the medium and common sorts were rather slow of sale and values were barely maintained.

Futures have been a droopiug market, the large Brazilian receipts forcing prices gradually lower, and quotations mark a decline of 9d to 1/- since our last.

Messrs. Wm. Jas. and Hy. Thompson's Report of the Colonial Market Week ending September 14*th*, 1898, states:—Bank rate 2½%. Exchange closes at 1s 3 3/32d. Brazil Exchange 7 1/16d. Rupee pap 62½. Silver 28d per oz.

Supplies have been on a much larger scale during the past w bulk consisting of pale, undesirable qualities, which met a slow at easier prices, the small proportion of hard greenish and fin kinds selling steadily to a further advance.

Brazil markets unchanged.

At the Dutch sale held yesterday in Amsterdam, the moderate of 21,059 bags 17 cases were offered and sold at very irregular pri mostly above valuations, good ordinary Java selling at 35½ cents 37½ cents in August.

Daily receipts averaged 12,700 bags in Rio, and 22,500 bags in S

Futures have continued quiet and lower, with a small busines closing prices shewing a decline of 3d to 9d per cwt., viz.:—Good Santos in Havre, December delivery, fcs. 38.00, in Hamburg pf. No. 7 low ordinary Rio in New York $5.65.

To-day's London official quotations are:—

	Sept.	Oct.	Dec.	Mar., '99.	May.	July.
SANTOS ...	31/-	31/-	31/3	32/-	32/3	32/6

We quote:—

Ceylon, mid. to good mid.	101/	@108/	Costa Rica, mid. to fine...	69
Do. small to low mid.	79/	„ 99/	Do. ord. to low middling.	3
East India, mid. to good mid...	70/	„ 92/	Jamaica, good to fine ord.	3
Do. small to low mid.	58/	„ 72/	Do. greenish to fine colory...	6
Guatemala, mid. to fine...	66/	„ 98/	African ...	2
Do. good ord. to low mid...	50/	„ 64/	Columbian, ordinary ...	3
Salvador, good ord. foxy greenish...	38/	„ 42/	Do. good ord. to low mid...	4
			Do. mid. to fine...	6

Receipts in Brazil to 14th September, compare as follows with p years:—

	1898-99. Bags.	1897-98. Bags.	1896 Bag
RIO	821,000	1,202,000	883,
SANTOS	1,633,000	2,080,000	1,472,
	2,454,000	3,282,000	2,355,

Prices realized at auction for the principal Marks of East India

NEILGHERRY.

	A	B	C	PB
Curzon Nilgiris	100/-	85/6	63/6	91/6
JM Droog Estate Neilgherry	78/- bid	68/6	48/6	—
Mailoor ...	70/-	58/6	46/-	70/-
S & Co Neilgherry	80/-	63/-	53/6	94/6
Kulhutty ...	89/-	70/- 70/6	46/-	84/-
Little Ireland ...	56/-	50/6	44/6	52/6
AGN Glenburn Nilgiris	85/6 bid	65/6	50/-	98/6
Craigmore —„—	93/-	71/6	52/6	100/6
Kinnacoorie —„—	92/6	70/-	49/6	99/6
Terramiah ...	97/-	73/6	51/-	95/-
Upper Waverley.	96/6	77/6	69/-	91/-
Montere ...	91/-	64/-	50/-	95/-
Pomanoo ...	90/-	60/-	49/-	76/-
Tudor Valley ...	80/6 bid	57/- bid	45/-	70/-
Tiger Rock ...	84/-	60/6 bid	47/-	73/6

MYSORE.

	A	B	PB
Hirekulali Mysore Plantation P	91/- bid	70/- bid	102/- bid

SALEM (*Native.*)

DB & Co ...	62/-	51/-	45/6
Landed last week ...	396 *tons. Deliveries* ...	652 *tons. Stock*...	19,9
Do. last year ...	401 „ „ ...	672 „ „ ...	12,0

London advices of 16th September, 1898, state :—

Auctions have been on a larger scale this week than for some time past, and the demand has been varied. Plantation Ceylon, which continues in limited supply, sold at steady prices. There has been more East India offered than for some time past, the greater proportion of which was Neilgherry; all desirable qualities sold with competition at full rates, fine marks realising a further advance, whilst the dull and inferior descriptions were somewhat difficult of sale Mocha neglected. Colory Costa Rica and other Central American kinds were very firm, but ordinary qualities were only partly disposed of; Colombian was in active demand for export, and high prices were obtained for bold and colory. The market for "futures" has been flat and prices are easier, closing as follows :—

London	...Santos	...December delivery	...	30s. 9d.
New York	...No. 7 Rio	... „	„ ...	5.60 cents.
Hamburg	...Santos	... „	„ ...	31½ pf.
Havre	...Santos	... „	„ ...	37½ francs.
Holland	...Good ordinary Java	...	...	35½ cents.

At the Dutch Trading Co's public sale on Tuesday, at Amsterdam, 21,059 bags 17 cases offered and sold at very irregular rates—good ordinary Java realising 35½c, as compared with 37½c paid in August, whilst other kinds were dearer.

Imports Deliveries and Stock of Coffee in London are as follows :—

		Stock.		Imports.	
		1898.	1897.	1898.	1897.
West India	... tons	520	376	1,606	811
Ceylon	... „	151	200	293	469
East India	... „	2,077	2,008	5,590	5,070
Mocha	... „	527	499	659	511
Brazil	... „	3,560	2,131	2,832	1,677
Other Foreign	... „	12,793	6,757	26,548	20,425
Total	... „	19,628	11,980	37,528	28,990

		Home Consumption.		Export.	
		1898.	1897.	1898.	1897.
West India	... tons	261	254	1,164	529
Ceylon	... „	109	124	142	260
East India	... „	1,887	1,701	2,732	2,172
Mocha	... „	515	378	114	162
Brazil	... „	698	880	1,545	1,901
Other Foreign	... „	6,608	6,703	11,818	10,087
Total	... „	10,078	10,040	17,515	15,111

The preceding figures exhibit—

In the imports an increase this year of	8,538	tons.
Home consumption a decrease of	38	„
Export an increase of ...	2,404	„
Stock an increase of ...	7,048	„

Public auctions this week have gone off as follows :—

Ceylon.—*Plantation.*—8 casks 3 tierces 38 barrels 14 bags sold, triage 38s to 39s, smalls 50s to 96s, brownish medium 75s 6d to 82s, middling 103s to 107s, good middling 109s to 109s 6d, bold 110s to 112s, pea-berry 90s 6d to 96s.

Ceylon.—*Liberian.*—Of 248 bags a small part sold at 24s to 26s for small and common.

East India.—1,383 bags partly sold as follows :—*Coorg*, smalls 46s, low middling 70s to 70s 6d, good middling 89s, pea-berry 84s. *Neilgherry*, triage 35s, smalls 44s to 53s 6d, low middling faded 58s 6d to 63s 6d, middling to good middling faded and dull 70s to 80s, bold 84s to 97s, pea-berry 70s to 100s 6d. *Wynaad*, bold 88s 6d. *Shevaroy*, triage 35s, smalls 47s.

Mocha.—124 packages all bought in.

Jamaica.—143 barrels 20 bags partly sold—ordinary pale 32s 6d to 33s, good ordinary 38s to 39s. *Blue Mountain*, triage 60s to 78s, pea-berry 123s.

Costa Rica.—Of 6,400 bags offered about 4,200 bags sold—triage 28s to 29s, smalls 34s to 36s, ordinary dull pale 40s to 41s 6d, good ordinary 43s to 47s, fine ordinary greenish 49s 6d to 51s, fine fine ordinary 55s to 58s, low middling 61s to 65s 6d, middling 69s to 72s 6d, good hard 85s to 86s 6d, good colory 100s, pea-berry 49s 6d to 89s 6d; London-cleaned, smalls 25s 6d to 33s, ordinary brownish 40s to 45s, fine ordinary 52s 6d to 53s 6d, fine fine ordinary to low middling slightly mixed black 58s to 66s 6d, middling 70s 6d to 73s, good middling 75s 6d to 80s, good 88s to 89s, pea-berry 74s 6d.

Guatemala.—Of 1,567 bags catalogued about 1,000 bags sold, triage mixed with stones 24s to 26s 6d, smalls 30s to 36s 6d, ordinary pale 39s 6d, fine ordinary 42s, low middling palish 58s, pea-berry 73s; London-cleaned, low middling soft greenish 60s, good middling boldish 77s to 77s 6d, bold 89s, pea-berry 90s.

Salvador.—Of 748 bags offered only 50 bags sold—fine ordinary dull pale 46s to 46s 6d.

Mexican.—Of 353 bags offered only 20 bags sold—London-cleaned, smalls 34s.

Colombian.—Of 2,631 bags offered about 2,000 bags sold, smalls 32s 6d to 37s, fine ordinary pale 48s 6d to 53s 6d, fine fine ordinary 59s 6d, low middling to middling 61s to 67s, good middling 70s to 75s, pea-berry 57s to 65s; London cleaned, smalls 30s to 44s, damaged and soft greenish mixed red 52s to 60s, low middling soft greenish 62s to 63s 6d, middling colory greenish 66s 6d to 70s, good middling 73s 6d to 78s 6d, bold 81s 6d to 91s 6d, peaberry 62s 6d to 68s 6d.

Peruvian.—111 bags bought in.

Brazil.—Of 1,503 bags washed Santos 700 bags sold privately; remainder bought in at 39s to 47s.

To-day's auctions offered 136 bags Surinam, 104 bags Coban, 800 bags Vera Paz, 418 bags Costa Rica, 75 bags Nicaragua, 36 bags Mexican, 60 bags Guatemala, 33 bags Salvador and 1,035 bags Columbian. The sales went off with slow demand at unchanged prices.

TEA.

Messrs. Gow, Wilson and Stanton's Indian, Ceylon, and Java Tea Report, dated September 9th, 1898, says :—

QUANTITY BROUGHT TO AUCTION IN LONDON FROM 1st JUNE TO DATE.

	Indian.	Ceylon.	Java.
1898-1899...	256,166 packages.	367,582 packages.	13,237 packages.
1897-1898...	241,043 „	401,233 „	14,036 „

39,482 *pkgs.* Indian
26,522 „ Ceylon
1,909 „ Java
} Total 67,913 packages were offered in public auction this week.

The month's deliveries indicate a more hopeful outlook; figures for the past three months are also more encouraging; the stock of Indian Tea is now only 2½ millions above what it was this time last year, that of Ceylon being 4½ millions less, while the total stock shows considerable diminution.

Indian. The present week's sale passed off with considerable spirit, bidding being brisk, with a slight rise in many grades, most noticeable in good useful liquoring descriptions, especially among Broken Pekoes. Teas for price were also occasionally a trifle dearer. Averages :—"Darjeeling Co. Phoob," 2/4¾; "Turzum," 1/11½; "Tukvar T Co., Tukvar," 1/10¾; "Seeyok," 1/10; "Runglee Rungliot," 1/7½; "Margarets Hope," 1/6¼; "Cedars," 1/6; "Lebong T Co.," 1/-.

Ceylon. With a smaller sale, and only 16,260 packages for next week, the tendency was strong, and better quotations were noticeable when improvement in quality was discerned, some of the finer liquoring Teas commanding special attention. Medium Pekoes were a shade dearer. Arrivals are now beginning to show an improvement in character. Average for week 7·73d., against 7½d. same period 1897.

Java. Competition was good and prices firm, Teas going at, if anything, slightly dearer prices.

London advices of 16th ult. state :—

China.—Congous have not improved in demand since our last, and auctions have dragged considerably. New season's Moyune Green teas sold at low figures as quality was poor, but old season's, when of good quality, realised somewhat over valuations.

During the week 5,673 packages have been offered at public sale and partly sold :—

Indian.—Public auctions were about on a similar scale, viz.: 38,800 packages, against 39,300 packages last week, and 49,100 packages a year ago.

There was a steady demand for all Teas with attractive liquor at rates which did not show much alteration, but the less desirable parcels were comparatively neglected and often passed in buyers' favour. Pekoes and Pekoe Souchongs with fair cup were taken rather more freely for home and export purposes, but inferior common was difficult to sell except at a slight reduction in price. Broken Teas and Broken Pekoes with strong infusions are in somewhat short supply, and went firmer, while for fine and finest Darjeelings high figures were given, among the best results being :—Poobong Estate, 119 packages, 2s 2d; Dooteriah Estate, A.T.E. Co., 100 packages 2s 1½d; Selimbong Estate, 80 packages, 1s 10½d; Balasun Estate, D.C.T. Co., 116 packages, 1s 9¼d; Turzum Estate, 125 packages, 1s 7d; Kalej Estate, A.T.E. Co., 94 packages, 1s 6¾d.

For 29,900 packages on Garden Account 9¾d per lb. was obtained *versus* 9¼d per lb. for 34,100 packages and 10¼d per lb. for 32,000 packages in the two preceding seasons.

Ceylon.—The amount brought forward marked a considerable shrinkage, being only 15,700 packages, whereas on the 6th inst. 25,900 packages were offered, and 25,800 packages at this time in the preceding year. This unusually small quantity met with a brisk competition for all descriptions. Common to fair leafy kinds occasionally sold fractionally dearer. Medium evinced irregularity and some of the Pekoes, particularly those suitable for export, advanced ½d to 1d per lb. Broken Orange Pekoes and Broken Pekoes over 10d per lb., when possessing choice flavor, in many instances commanded 1d to 2d per lb. over the quotations recorded for the same marks last month.

The average is a little over 8¼d per lb. On the 8th inst. it was 7⅞d per lb. and 7¾d per lb. on the 16th September, 1897.

JAVA.—Nearly 900 packages of direct import were included in the catalogues. A hardening tone was apparent for the better lines, but others were nearly all disposed of without material change.

DELIVERIES.—The clearances of all Tea (on which duty has been paid) from the London warehouses, as per official returns, were :—

From 1st to 13th Sept., 1898.....6,872,212lbs.
„ „ 1897.....7,422,158 „

During the week the following have been printed for sale by public auction :—

	Sold. Pkgs.	Withdrawn. Pkgs.	Total offered. Pkgs.
India	33,974	4,829	38,803
Ceylon	15,227	459	15,686
Java	740	158	898
Total	49,941	5,446	55,387

Also 335 packages from second hands.

TEA IN AUSTRALIA.

MELBOURNE, *September 10th.*—The "Australian," with the fourth shipment of Foo Chow teas, has arrived at Sydney. Her sales will be held here on Tuesday next. The "Argus" is expected from Adelaide on Saturday with 227,000 lb. of Indian Teas. The "Onda's" shipments have not yet been disclosed. The market, as a whole, is firm, prices tending upwards, principally in common and good commons China and medium Ceylon.—*Leader.*

TEA IN AMERICA.

NEW YORK, *Sept.* 7.

The auction sale takes place to-morrow, pending which trade has been slow in invoices and in a jobbing way. The market has ruled steady. The offering to-morrow comprises 14,647 packages, viz. :—

1,017 half-chests Moyune—including an invoice of new crop, to be sold "duty paid"; 581 boxes Pingsuey—new crop, to be sold "duty paid"; 90 half-chests Japan—basket-fired, new crop, seasons 1898-99; 1,058 half-chests and boxes Congou—including 186 packages new crop; 285 packages India, Java and Ceylon Pekoe—comprising all grades; 26 packages India greens; 1,920 half-chests and boxes Amoy—an attractive offering, including a large proportion of boxes; 145 half-chests Foochow; 2,543 half-chests and boxes Formosa—new crop, seasons 1898-99, and including very attractive invoices; 6,982 half-chests and boxes Formosa—including a large quantity of very choice "Summer Crop" teas.—*American Grocer.*

CINCHONA.

London advices of 16th ult. state :—

Supplies at Tuesday's auctions were somewhat larger, which, in addition to the large Java shipments last month (over 1,000,000lbs.), and the heavy offerings to be presented for competition at the next Amsterdam sales, caused a languid demand. Druggists' Barks were decidedly easier in value, but manufacturing kinds realised about valuations. South American of new import sold very cheaply. On the whole the unit remains at ⅞d.

Of 772 bales *South American* offered 330 bales sold—Bolivian cultivated Calisaya quill 3d to 5d, flat ditto 5d to 5¼d, Carthagena 1¼d to 1⅜d, and soft Columbian 1⅛d to 1½d per lb.

367 bales, &c., *Ceylon Cinchona* nearly all found buyers, as follo Officinalis, chips 2½d to 3⅛d; Succirubra, chips 2¼d, chips and sh renewed 1⅜d to 2¾d; Ledgeriana, chips renewed 3¼d; Hybrid, 2¾d per lb.

Of 357 bales *East India Cinchona* offered 190 bales sold :—Offic chips and shavings 2d to 2⅝d, ditto renewed 3⅛d; Red, chips and sh 1⅛d to 2¼d, ditto renewed 2d to 2¼d, root 2⅜d, branch 1d t Ledgeriana, chips 2⅝d, branch 2¼d per lb.

143 bags *Java Cinchona* sold :—Ledgeriana, chips 3¼d to 3⅛d, b 2¼d to 3⅝d, root 4½d per lb.

572 bales *African Cinchona* sold :—Succirubra, quill 2½d to 4d, b quill and chips 3½d to 3¾d per lb.

SULPHATE OF QUININE.

Sulphate of Quinine is very slow of sale, but holders do not press recent quotation of 9½d per oz.

OFFICIAL QUOTATIONS.

Sulphate of Quinine—	*in tins.*				*in 1 oz. vi*			
Howards & Sons	1s 0d	to	0s 0d		1s 2d	@		
Thomas Whiffen	0s 10d	„	0s 0d		1s 0d	„		
Brunswick	0s 10d	„	0s 0d					
Mannheim	0s 10d	„	0s 0d					
Auerbach	0s 10d	„	0s 0d					
Zimmer Jobst	0s 10d	„	0s 0d					
Milan	0s 0d	„	0s 0d		0s 0d	„		
Taillandier	0s 9½d	„	0s 0d					
Amsterdam	0s 0d	„	0s 0d					
Pelletier's	0s 0d	„	0s 0d		1s 5d	„		

PEPPER.

LONDON, 16*th* S

Black.—A dull market this week, and value for arrival is lower. reported this week 200 tons, including Singapore on the spot at 4½ fair, August-October shipments (s.) at 4⅞d down to 4 13/16d, and Septe November at 4 13/16d, down to 4 13/16d, October-December 4 13/16d.

Auctions on Wednesday offered 539 bags Singapore, 725 bags P and 407 bags Lampong, not a single bag of which sold.

White.—Sales of fair Singapore have been made at 8¼d, near at at 8½d. August-October shipments at 8¼d, and October-December a down to 8 7/16d. Penang on the spot has been done at 7⅝d fo November-January shipment at 7 11/16d. Sales 150 tons.

At public sale on the 14th inst., 16 cases 544 bags Singapore, 14 Siam, and 297 bags Penang all passed the hammer unsold wit exception of 170 bags of the last description, which sold prior auctions.

GINGER.

LONDON, 16*th* S

Cochin.—There is little change to note in the condition of this ma demand is generally quiet and prices are barely firm. Catalogues emb 166 cases 441 bags, of which 83 cases 441 bags found buyers—fine b cut 80s, good small roughly cut and scraped 33s to 34s 6d, very dull and ends, some medium, roughly cut and scraped 29s to 29s 6d, shrivelled ends 17s, dull small and ends washed rough, wormy and w (253 bags) 15s 6d to 16s 6d, low shrivelled, wormy (134 bags), 14s 6d, cuttings 12s 6d.

Bengal.—179 bags bought in at 20s per cwt.

PUBLIC SALES OF SOUTH INDIAN TEA.

(AVERAGE FOR ALL INDIA 9·25*d.*) *September 9th.*

GARDEN.	Total.	Average.	Broken Org. Pek. or Flowery Pekoe.		Pekoe and Unassorted.		Broken Pekoe.		Pekoe Souchong.		Broken and Souchong.		Fannings, and Vari	
	Quantity	Price.	Quantity	Price.	Quantity	Price.	Quantity	Price.	Quantity	Price.	Quantity	Price.	Quantity	P
Neilgherry ...														
Kodanaad ...	262 p	6	...	...	66½c	6¾7⅝	7½c	8½	48	5¾	120	5¼5½	21½c	
Travancore ...	**520 p**	**6·23**												
Goatfell ...	126	5¾	53	5½5⅝	11	5¼	23	7¼	39	4½5	...	...	...	
Invercauld ...	58 p	5½	...	...	28	5½	18	6	9	5	...	...	3½c	
Isfield T Co Isfield.	66	5¾	...	...	28	5½	38	6	...	...	...	...	...	
Penshurst ...	134 p	7½	68 p	6¾11⅝	30	6½	22	8¼	9	6	...	...	5	
Vembenard ...	136	6¼	...	...	34	6¼	64	7	17	5½	12	6¾	9	

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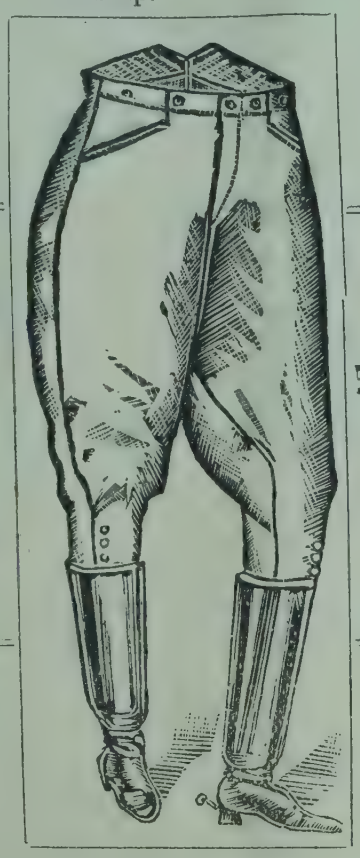

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[w. 1-10-98—31-3-99.] **E. D. SMITH & CO., MADRAS.**

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Handles, iron, for pit saws.
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Iron, angle, of sizes.
Iron, flat, of sizes.
Iron, T, of sizes.
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[w. 1-10-98—31-12-98.]

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PLANTING OPINION.

A WEEKLY JOURNAL

WRITTEN BY PLANTERS FOR PLANTERS.

OL. III.] MADRAS, SATURDAY, OCTOBER 15, 1898. [No. 41.

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SUBSCRIPTION.—Advance Rates: Yearly, Fifteen Rupees; Half-yearly, ght Rupees; Quarterly, Five Rupees, and Monthly, Two Rupees, including ostage. Single Copies, Eight Annas.

ADVERTISEMENTS.—The charge for line advertisements is 4 as. r line for the first, 3 as. for the second, and 2 as. for the third and succeeding sertions. Five-line (or shorter) advertisements from Subscribers will be serted for three issues for one rupee; non-Subscribers will be charged two upees.

DOMESTIC OCCURRENCE.—The fee for inserting a domestic ccurrence will be *One Rupee* for each insertion, payable in advance.

N. B.—Remittances should be sent to E. C. Duff & Co., Proprietors, Planting Opinion," 16/17, Armenian Street, Madras.

IMPORTANT NOTICE.

The Offices of this paper having now been removed o Madras, all remittances should be made payable to . C. Duff & Co., Proprietors, *Planting Opinion*, 16 and 17, rmenian Street, Madras, who will also attend to all dvertisements, &c.

Letters to the Editor should also be addressed to the adras Office.

SEASON REPORTS.

TO OUR SEASON REPORTERS.

Please post your next reports to reach Madras on Friday, the 21st October, 1898.

Season Reports should be sent to the Printers, Messrs. Addison & Co., direct, and not to *Planting Opinion* Office.

News from Ceylon. A correspondent at Madulkelle writes us, under date 7th instant:—"The N.-E. monsoon has broken here and stopped, and these last three days we've been having typical sweet weather. Labour is plentiful this side, but the flush is not yet."

Coorg. Polli Betta, 11*th Oct.*—*Weather.*—Last Saturday was the only day on which there was no rain. It has rained usually in the evenings and at night. There has been a change to-day. It has been overcast and raining all day since the morning. Heavily at first and a drip afterwards. *Plant-diseases.*—"Leaf" beginning to show up in heavy bearing coffee. It was hitherto restricted to patches in plastic soil. *Crops.*—Picking expected to begin early next month. *Health.*—Good. *Labour.*—Plentiful. *Interesting Items.*—Rifle Meeting from 17th to 20th and Volunteer dinner at Club on 20th.

IN COMPETITION WITH CHINA.

A Suggestion.

Among our notes last week was one from the *Economist* commenting on the report of Mr. Consul Fraser (now Acting Consul at Foochow) on the trade of Wuhu. In that report Mr. Fraser stated that the real currency of China is not silver but copper cash, and further that instead of a *depreciated*, China thus has a highly *appreciated* currency. This is a point that should attract the attention of those who are watching with interest the progress of the inquiry now being made into India's currency and currency requirements. The Bengal Chamber of Commerce has taken the matter in hand, and the lines on which it inquires to run are shown in an extract given on another

page. The Secretary of the U.P.A.S.I. has, we understand, set inquiries in motion, and no doubt further and fuller information will be forthcoming in due course. Meanwhile, however, we venture to throw out a suggestion that the U.P.A.S.I. should not allow Lord CHARLES BERESFORD's mercantile mission to China to pass unheeded. It appears to us to offer an unique opportunity of which planters should promptly avail themselves. The precise instructions Lord CHARLES has received have, of course, not been made public, but during a speech recently delivered at Singapore he said enough to show that he is visiting China literally "on business." He remarked that British trade was getting very circumscribed in all parts of the world; that was to say, other nations were finding out what a very beneficial thing trade is, and other nations were embarking in trade all over the world, not necessarily to our detriment, but in some cases to the exclusion of our trade. It was our business to see that our interests and our trade were not hurt in any way whatever. The present position of affairs in China, with regard to British trade and British interests, was a very critical one. Lord CHARLES went so far as to say that he believed that unless something was done of a definite character, some resolute policy of a peaceful nature undertaken, it might mean the end, more or less, of the British Empire in the future; and he would give them his reasons. And though he deprecated any desire to pose as a man who knew the business of China merchants better than they did themselves, he yet thought that, perhaps, he might be of some use in this very important mission which he had been asked to undertake by the Associated Chambers of Commerce at home, if he could focus the opinions of British traders as to what was necessary, because something had to be done, and the thing was to find out what that something was.

There is no doubt that he might render great assistance to India as well as to England. An inquiry into the Currency of China and the effects there of the fall of Silver has already been suggested by the Bengal Chamber of Commerce and the Bombay and Madras Chambers have supported the proposal. But there is a doubt current as to whether the man specially named for the task is the best available. We therefore venture to suggest that the U.P.A.S.I. should move the Madras Government in the matter, so that Lord CHARLES may be requested to include within the scope of his inquiries matters relating to the China Tea trade, with special regard to the competition between China and India. He could, we are sure, acquire much useful information; and to judge from his remarks at Singapore he would not shrink from the extra work this inquiry would impose upon him. Special facilities for investigation will be given him. He might be asked to give in condensed form a statement regarding the real currency of China, not from the pen of one Consul, but as a result of communication with many. He could easily put before the world a comprehensive report that would clear up many points about which doubts now lurk. We read about the immense tracts of eminently fertile country in China that would be opened up if once European civilisation were permitted to make its mark on the agriculture of the interior. As an example, Mr. ARCHIBALD LITTLE, who has lived forty years in China, describes—in the *Contemporary Review*—the region that is supposed to be the sphere of British interest. The river is about three thousand miles long, and two thousand of these are na Another thousand miles of its principal affluents navigable, so that we have a waterway of three t miles in length flowing through the most populous on the earth's surface. Great Britain and her col about two-thirds of the ten millions sterling imp exports in this region, but Mr. LITTLE says that portion is steadily waning owing to the compet Germany and the United States:—"It is no exagg to say that, given a stable and progressive Gov affording encouragement to capitalists with secu their investments—resulting in improved means munication and a corresponding development of its resources—the Yang-tse valley will increase its leaps and bounds, and the £33,000,000 of to-day £300,000,000 to-morrow." Now this suggests that ments such as are here foreshadowed would include changes and developments in the China Tea i entailing greatly increased competition with India. Indian planters should be on the alert.

We do not purpose to elaborate our suggestion. it is scarcely necessary that more than two or three "heads of inquiry" should be mentioned to Lord BERESFORD. His ideas on the development of the Empire have been plainly expressed. They are, t British Government, with all the energies at its co should try to develop the great waterways of China, they would then have the people with them; the understand that line of transport. By and by things improved, they could invest their capital in but no business man would ever think he was goin a handsome dividend in the near future. Progress lines as these would tend to lower the cost of Ch Planters in India should, therefore, seek to ascer strength of the competition to which they mu forward. They must study not alone the condition which they themselves produce tea and place it markets of the world, but the conditions that no tea-growers in China. Knowing exactly what th to face, they will soon discover what measures to the most effectual protection of their interest. we think, Lord CHARLES BERESFORD could, and would, help them to ascertain the facts that they know, it would be wise to bring the matter to his a time when he has quite exceptional facilities for inquiries.

GEO. HODSON,

FLORIST AND SEEDSMAN

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Seeds not in stock procured at shortest not

[w. 3-9-98—t.f.o.]

TEA EXTENSIONS IN ASSAM.

HE Chief Commissioner of Assam has expressed the ion that the adoption of the settled area as the of the extension of ordinary cultivation and of the t of the recent settlement on such extension is calcu- l to give rise to a false impression. He considers that extension of cultivation that has been reported is cipally under tea, and that there can be no doubt that area of crops other than tea has shown a tendency to nish during the past five years. The following tabular ement is given :—

Years.	Area under tea crop.	Area under crops other than tea.	Total.
	Acres.	Acres.	Acres.
893-94	145,134	1,574,175	1,719,309
894-95	153,874	1,533,438	1,687,312
895-96	154,389	1,537,845	1,692,234
896-97	164,639	1,540,157	1,704,796
897-98	178,720	1,506,358	1,685,078

, this shows an actual *decrease* in area under crop n 1897-98 is compared with either 1896-97 or 1893-94; taking tea alone we find the following yearly additions ne area under cultivation :—

Between.	Acres.
1893-94 and 1894-95.	8,740
1894-95 „ 1895-96.	515
1895-96 „ 1896-97.	9,250
1896-97 „ 1897-98.	14,081

ewhere we read that 120 applications were received for settlement of land for special cultivation on favourable ns under Section I. of the Rules. This number, though ller than that of 1896-97, was very largely in excess of number received in any previous year. How far, if at this affects tea extensions we cannot at the moment say.

JAVA COFFEE.

HE position of Java Coffee is always singular, as well ause so much is grown by Government as because of the uliar arrangements made for its sale. Generally speak- other coffees come into competition in the great kets of the world, London chief among these. But a Coffee is almost entirely shipped to Amsterdam for there at periodical auction sales. The interest that se always attract in London is almost as singular as the that they still continue to be held. Although an extra- inary, Java is a potent factor among producing centres, the Amsterdam sales at times exercise a strong influence n prices in London and elsewhere. How much the nd's crops owe to the State can scarcely be estimated, reports such as the following read curiously, and seem lenote that the Dutch-Indian Government is a competent ter :—"The estimates formed for last year's coffee crop e fully realised, as although private production fell some- t short, this was more than counterbalanced by the ps from the Government plantations. From these ls 28,880 tons were picked, and from private estates 26,400 tons, against 16,565 tons and 25,500 tons, respectively, in 1896." Early in the year prices ruled high, but later there was a heavy drop in values in Europe, and this greatly affected the lower qualities of Java Coffee and all classes of Liberian. The cultivation of the latter was being largely extended in Java, and a fall of about 40 per cent. in prices was a serious matter. This year, a period of drought during the usual flowering season was followed by excessive rains. The crop is likely, therefore, to have proved an almost complete failure. Estimates were reduced by about 30,000 tons, the figures being as follows :—

	Quantity.	
	Piculs.	Tons.
Java Government crop	134,064	8,125
Sumatra „	37,000	2,242
Private Lands, Java Coffee	192,355	11,658
„ „ Liberian „	49,554	3,003
	412,973	25,028

This time, it will be seen, private crops are estimated to exceed those of Government plantations.

As regards prices obtained in 1897, we may remark that at the Java Government Coffee Sales the lowest average was fl. 24·45 and the highest fl. 62·86 per picul = say 33/6*d.* and 86/3*d.*, respectively, per cwt., while the extremes at the Padang Government Coffee Sales were fl. 51·53 and fl. 80·60 = 70/3*d.* and 110/6*d.*, respectively, per cwt.

The exports of Coffee from Java during 1894—97 were as follows :—

	Private.	Government.	Total.
	Tons.	Tons.	Tons.
1894	39,376	34,274	73,650
1895	32,354	16,890	49,244
1896	36,039	9,887	45,926
1897	26,400	28,880	55,280

It may be remarked that during 1897 dried blood was imported into Java largely as a fertilizer. Its use is stated to have been found advantageous on many coffee estates.

THE LOWER PULNEYS.

(From a Correspondent.)

"P. O." readers must think the Lower Pulneys have quite gone under, by bug or other causes, from the little news of the district that appears to reach the Editorial ear. But they *do* exist still, if in a merely modified state of existence as compared with other and more flourishing districts. There is no doubt that the bug is answerable to a very great extent, though indirectly, for the apathy of the District Association, whose doings lately have not been worthy of record. Unfortunately possessing fewer members than ever it has done since its start, the Association has not the potential energy of capital behind it to spur it on to deeds of derring do in the Planting World, and, be it said with due shame, very few members take more than a casual interest in an Association which is not spurred on to *something* or other!

We have had a glorious season with one exception. Starting with simply gorgeous blossoming showers that brought bumper estimates all over the hills, and bumper smiles all over the proprietors' faces, the Clerk of the Weather, maliciously or unfortunately, got the rain tap jammed for the best part of four months, thus ruining our hopes and lightening our bean and berry, preliminary to lightening our pockets likewise, and now, as if to add insult to injury, we are assailed with the best planting and crop-ripening (if we had any crop to ripen) season we have known for many years. In common fairness, however, I must say that crops for general badness are not a patch on last season, and proprietors may recoup what they lost last year, but—we *did* so hope for a bumper!

The extent of the drought we have suffered may be somewhat appreciated when I say that the greatest difficulty has been experienced in almost every estate in getting sufficient drinking-water for bungalow use. Holes in the beds of the all-too-dry streams were shared by chukkler, manyadi, chetty and *dorai* alike, and the stench of the thick black mud in the, possibly, only waterhole for miles round was a thing to be felt, but hardly otherwise believed.

Planting has been vigorously carried on for the last month or so on two or three estates, and the weather has been all that heart could wish. Basket-planting has been the order of the day, and though not new to the Pulneys, baskets have yet to become general favourites. However, this year's planting so far cannot be beaten, I venture to say, by any district. Plants put out in August are absolutely bubbling over with life and spirits, and so far from any dying, I verily believe one would have to root them up, expose them on the bare rock for a week, and finally beat them with a club before they would give up the ghost. It may be that I am an optimist.

The results of the excellent *trenching* done earlier in the year are apparent in many estates, patches that have been left untrenched showing up in the most marked way by contrast with the rest. Coffee generally, however, even in spite of bug, is looking excellent.

Picking has begun in good earnest, though the Northern estates are not so forward as the more Southerly. Labour is never too plentiful at this time of the year, but I believe it meets all existing wants, but if we had on the trees the crop we expected to have, we should all be crying out about the scarcity thereof.

September brought us over nine inches of rain—considerably above the average, though, owing to the drought in the middle of the year, the total rainfall from the 1st January to 30th September is only 27 inches, when it should be nearer 35. These late good rains have brought the general prices of grain to the normal, but not the normal of ten years ago, alas!

The Pulneys are becoming quite a good place for sport. Whether the cause is the extinction, or approaching extinction, of the cheetah on these lower slopes, or some less understood one, I cannot say, but certain it is that the pretty, and I may say tasty, spotted deer is becoming more and more common every month; and I have seen more pig during the last three weeks than I have seen in the previous four years.

There is much planted land in the market now, both within Zemindari and Government boundaries.

Native coffee is bearing wonderfully well all o hills, and seems, on the whole, less attacked by bu well-cultivated coffee. I have noticed in very estates, where the weeds have been allowed to gr bug is not damaging the coffee to the extent no elsewhere. I do not attempt to give an explana this, but it is certainly not because the bug goes weeds, the characteristic of these places being the complete absence of the bug from end to end.

Towards the middle and end of the recent drough the cooly on hills and plains was shouting for wor of the native proprietors took the opportunity of their weeding done on the cheap, but with the fir this stopped short suddenly, and weeds now run ric all over the hills on the native estate.

NOTES.

Reductions! In the Northern Tea d reports are current to the effe the shears are to be applied to the salaries of the Eu establishments on several concerns in the tea distric

Calcutta Tea Sales. The average of the Calcu sales of 28th ultimo was five eight pies. About 24,000 packages were offered sales on 6th instant. There was a steady market all except poor liquoring kinds, which were so neglected. Sales amounted to 23,062 packages.

Tea Samples per post. It is announced in the C papers that the weight of packets containing tea addressed to places in the Kingdom or forwarded in transit through the Briti Office to the United States of America, Canada and British Colonies is limited to 8 oz. The limit of we samples of tea when addressed to France is ¾ oz.

Java Tea. Exports of late years have as follows :—

1894	...	...	8,734,425 lb.
1895	...	...	10,146,800 „
1896	...	...	9,568,732 „
1897	...	...	11,218,559 „

The figures point to fairly steady expansion.

Coffee Blight in Burma. News from Toungoo says bight is working great destr amongst the coffee plantations there, all the gardens of Leikhto being badly damaged, while those n Toungoo are now showing signs of being affected. S is wanted as a preventive, but the provisions of the

COFFEE SHADE TREE.

Sun-dried Erythrina Lithosperma loppings, &c., cont ton :—

61·50	lbs.	Nitrogen.
57·38	„	Potash.
14·92	„	Lime.
13·68	„	Phosphoric Acid.

Seed cured under essrs. Sutton and Sons' advice.

Orders should be booked early for the 1898-1899 crop of see the parent trees of above analysis at Rs.6 per pound con about 2,000 seeds. *Germination guaranteed.*

Only thornless variety extant, and is not procurable anywhe from the

MANAGER, ARIENKOW ESTATE,

Shenco

Act put serious difficulties in the way of planters securing a supply from Rangoon.

Careful Plucking of Tea. A Dimbula planter remarks that he does not pluck fine but simply more carefully, and discards the coarser leaf. He says this has an almost imperceptible influence on the total output per acre—much less than people imagine. What it does is to increase the cost of plucking per lb. of tea, as one has to go round more often, and the amount each cooly brings in is less. This, of course, makes plucking dearer, but the result is a gain of as much as 2*d.* per lb. added on to the average.

Java Cinchona. In Java, as in India, the State enters into competition with private growers of Cinchona bark. The following are the statistics of exports of late years :—

	Private. lb.	Government. lb.	Total. lb.
1894 ...	8,994,217	712,478	9,706,695
1895 ...	7,620,770	810,370	8,431,140
1896 ...	9,440,855	631,177	10,072,032
1897 ...	7,901,502	597,224	8,498,726

It is good to see "private" figures so well in advance.

Chicory Prospects. *L'Economie*, of Tournai, Belgium, September 11, 1898, reports :—During last week the heat returned with increased intensity. The dry weather prevents the root from growing; we must, therefore, expect a very poor crop, both in quality and yield, and, owing to want of rain, any late sowings may be considered as totally lost. We estimate that the deficiency as compared with previous year will be fully 50 to 60 per cent. of the total production. On the other hand, available old root in all countries is not more than 12,000 tons, against 50,000 tons last year. Under the circumstances, prices have again gone up during the week to the extent of 1f. 50c. per 100 kilos.

Consumption of Ceylon Tea in United Kingdom. A Colombo merchant having written :—"I don't know if you noticed in Gow's Tea Circular that the home consumption June to August this year shows a falling-off in Ceylon tea of about 2 million lb.

The figures are :—

1897	...	...	22,909,594 lb.
1898	...	...	20,952,233 „

It seems strange,"—the *Ceylon Observer* asks somewhat uneasily :—"Can this be due to the shorter supply of Ceylon tea as compared with Indian tea, the consumption of the latter being about 2 million lb. comparatively higher ?"

The London Market. Messrs. Gow, Wilson and Stanton cabled to Ceylon on 6th instant that the quality of offerings generally was improving, good liquoring Broken Pekoes were wanted, the market for poor liquoring teas was steady, the price of fair liquoring Ceylon Pekoe Souchong was 6½*d.*, and the average price of Ceylon Tea sold on Garden account during the week was 8½*d.* This shows an advance of ¼*d.* Reuter reported :—Tone of Ceylon Tea—Good demand at fully previous prices. Fair Pekoe Souchong he quoted at 5½*d.* (same as last week) and the average 8½*d.* (¼*d.* up). 18,000 packages of tea were offered for sale, of which 17,000 sold. Of Indian Tea 47,000 packages were sold out of 52,000 offered. The average was 8½*d.* (a decline of ¼*d.*)

Coffee in Mexico. Mr. Consul Carden reports on Coffee-planting in Mexico :—"Owing to the heavy fall in the price of coffee, which appears to have been due mainly to over-production in the world generally, and bids fair, therefore, to be to some extent lasting, the increase in the value of the exports is much smaller than the increase in the amount exported would lead one to expect. Although the reduction in the profits of coffee planting will probably have the effect of diverting the attention of investors to the cultivation of other products, the cheapness of labour, due to the fact that wages are paid in silver, will always give Mexico a great advantage over other countries, and it is scarcely possible to imagine a price for coffee so low that it would not leave a fair profit to the Mexican planter.

The Grand Pyramid! The Coolgardie Exhibition of 1899 and Paris Exhbitition of 1900 were entered on the Agenda paper of the Pussellawa Planters' Association at its proceedings on 28th ultimo. The Chairman, Mr. Duff Tytler, explained that this was done simply with the view of impressing on members the great importance of each one doing all he individually could towards the pushing and advertising of Ceylon teas *whenever* and *wherever* they could. There was no more valuable way of doing so than making a good show at all such centres of attraction, especially in countries outside Great Britain, whether English colonies or foreign countries. If every planter sent, say, 15lb. (5lb. each, say, of three grades), the cost *individually* would be very *small*, but *collectively* what a grand pyramid, and advertisement, especially if the tea was given away for free distribution ! Like the advertisement for "Players Navy Cut" they would have every man who attended these exhibitions and drank Ceylon teas *insisting* over the counters that they got *Ceylon tea* and *no other*.

Ceylon Tea Shipments in September. The total shipments of tea from Ceylon to the United Kingdom for last month amounted to about 7,500,000lb., as compared with 6,167,836lb. for September last year. The figures from 1st January to 30th September are as follows :—

	lb.
Shipments to U. K. to 30th September, 1898 ...	75,290,000
Do. 1897 ...	77,483,000

The figures for shipments to other markets are :—

	lb.
Shipments to Australia to 30th Sept., 1898 ...	10,960,388
Do. 1897 ...	9,205,561
Increase	1,754,827
Shipments to America to 30th Sept., 1898 ...	1,816,009
Do. 1897 ...	569,708
Increase	1,246,301
Shipments to Russia to Sept. 30th, 1898 ...	1,634,865
Do. 1897 ...	324,642
Increase	1,310,253

Obviously Ceylon is not unsuccessful in pushing its teas into these markets.

A Tea Cryptogamist. It is astonishing how civilization increases man's wants and causes the luxuries of the past to become the necessities of the present. Ceylon has had the services of a special fungus-studier for some time and now wants him appointed permanent Cacao Cryptogamist (what's in a name!). The *Observer* goes one better and says:—"But there are others who should be quite as much interested in the retention of the Cryptogamist. We do not wish to raise any alarm; but no one can read the several works published in India on tea pests, without realizing that our staple has its fungus enemies quite as much as Cacao." Our contemporary adds:—In Dr. George Watt's large volume on the 'Pests and Blights of the Tea Plant' there is very plain speaking as to the serious effect which the 'grey blight' and the 'blister blight'—both fungi—may have on tea in Assam, if the beginnings of their attacks are not watched and promptly dealt with. For this reason alone, is it not indispensable to have a Cryptogamist on the spot to be ready to deal with any fungus pest on Ceylon tea. Even now such is not unknown at certain seasons of the year, and it would be wilful blindness not to take the needful precautions when the right man for the work is already in the island." So it would, and it is to be hoped that the Madras Botanist, when he arrives, will prove to have a knowledge of fungi as well as of industrial problems connected with his science.

Coffee Hybrids. The *Ceylon Observer* refers to "a rather curious discussion" on this subject in committee of the U.P.A.S.I., and observes that as regards leaf disease it is a pity that all concerned do not take Mr. Marshall Ward's report as final, in regard to the life-history and action of *Hemeleia vastatrix*, and save themselves the trouble of describing appearances and attacks. As our contemporary admits that "certainly there must be a wonderful difference between Mysore coffee and the best left in Ceylon in view of what Mr. Graham Anderson states," we do not see why differences in regard to leaf disease also may not become apparent from time to time. The *Ceylon Observer* would like to know whether Mr. Anderson's crops per acre over his estates for 1893-8 as compared with those of 1883-8 justify his cheerfulness and adds:—"The coffee crops in Mysore as a whole have, we suppose it will be admitted, fallen off greatly in the period named." Perhaps Mr. Anderson will kindly enlighten our contemporary on the point raised. Its concluding remarks are as follows:—"In our leaf disease era, fresh seed from Mocha, East and West Africa, Jamaica, &c., were tried again and again without advantage; but no experiment in hybridisation was made *or at any rate persevered in.* It will be interesting to watch coffee developments in Mysore, Coorg and Wynaad." The italics are ours. Systematic and persevering work are essential to success.

LETTERS TO THE EDITOR.

SHADE.

Sir,—I see your South Mysore Correspondent is writing about Shade. Has he ever tried *Albizzia Jeyesaman.* I've never tried it as a preconcerted idea, but on an estate (tea) that I know very well there are a lot of *Jeyesamans* dotted about, and under them you'll always find a few healthy coffee trees that have lingered on when the rest died or were cleared out for the And you'll see no other coffee trees in the place.

Can you recommend a good shelter tree for a windy distr this estate holds the record for Ceylon. The late Superintend always slept on one side, and the wind, which is so strong it easily goes through a brick wall, made him permanently on one side.

Madulkelle, 7*th October*, 1898. } M.

GENERAL ARTICLES.

LATEST TELEGRAPHIC QUOTATIONS.

		London, 12*th O*
Bar Silver		27¾*d.*
Bank of England Rate		3 per cent
Coffee—Market quiet.		
Nilgiri, average (B) size		65/*s.*
Middling Ceylon		103/*s.*
Mysore, average (B) size		75/*s.*
Stocks		19,642 tons.
Fortnight's landings		1,000 „
Do deliveries		1,500 „
Cinchona Bark—Market firm		
Monthly sales		1,500 package
Price, per unit of Sulphate of Quinine		2 9/32*d.*
		New York, 12*th Oc*
Coffee—Fair Rio		6⅛ cents
Silver—commercial bars		59¾

TEA COMPANIES.

Associated Tea Estates of Ceylon (Limited).—The report for year ended 30th June last states that the area of the Compan estates was 2,759 acres, and new planting has been done on Sil Kandy, Chesterford, and Doragalla, to the extent of 91 ac making a net planted area of 1,889 acres. Some of the immat tea taken over by the Company has been very unsuccessfu planted, and has had to be supplied several times over. nurseries were put out with a high-class jhat of seed and h proved very successful, leaving on hand a large supply of se lings after satisfying immediate requirements. The yield has talled 707,969 lb. This, although showing an increase of 22,228 over the previous twelve months, is 57,031 lb. less than the agg gate of the Superintendents' estimates. Of the crop, the ent produce of two estates was sold in Colombo, and of two oth partly in Colombo and partly in London. The portion sold Ceylon, 544,680 lb., realised an average of 34·69 cents, and 163,289 lb. in London an average of 9·90*d.*, making together, af allowance for shipping charges to London, a gross average 7·11*d.* per lb. This compares with 7·28*d.* per lb. for the previ year. Considering that the general average of all Ceylon tea s in London public auctions fell from 8·04*d.* to 7·76*d.* in the respect periods, this Company's prices may be considered satisfacto The Chesterford and Madultenne estates were amalgamated as fr October, with satisfactory results as to economical and efficie working. The estimates for the twelve months ending 30th Ju 1899, are for a crop of 783,750 lb., an increase of 75,781 lb. over yield for the previous year, and the directors consider that figures are reasonable and likely to be realised. With the excepti of two estates, which are deficient to a slight extent, the labour fo is good and ample. The revenue account shows a net profit £4,694, to which falls to be added the balance of £165 broug forward from last season, making a total of £4,859. Out of t the directors paid £3,050, being interim dividends at the rates 3 per cent. on the preference and of 2½ per cent. on the ordin share capital, leaving a balance of £1,809, out of which the direct propose to pay the final dividend at the rate of 3 per cent. on t preference share capital (making 6 per cent. for the year), wh will absorb £1,800, and to carry forward the balance. The direct regret that the revenue has proved insufficient to pay a furth dividend on the ordinary share capital, but the yield has not be

reasonably progressive; the level of market prices has been lower; the rate of exchange has been still higher than before; the supply of rice has again been carried on at a loss instead of at a profit; and, in addition to these adverse circumstances, there has been the state of transition and reconstruction at the principal factories which could not fail to affect results both as to expenditure and income.

Scottish Ceylon Tea.—Interim dividend at the rate of 7 per cent. per annum for the half-year ended June 30th last on both ordinary and preference shares.

Dimbula Valley (Ceylon) Tea.—Interim dividend of 3 per cent. for the half-year, less income-tax, on the preference shares.

EXPERIMENTS IN TEA MAKING.

The *Ceylon Observer* directs the serious attention of the Committee of the Planters' Association to the following paper by Mr. John Hughes received by last mail :—

After writing for twenty years and recommending the scientific manufacture of tea in accordance with the Chemical principles involved, it is very gratifying to the writer to learn that the appointment of a distinguished and able Chemist as expert has at last been made. On reading in the last *Overland Observer* the account of the meeting of the Dikoya Planters' Association however, in reference to Mr. Bamber's proposed work, I could not help thinking that the terms of the appointment were either misunderstood, or that the benefit to be derived from Chemical research in the manufacture of tea had not been fully thought out by those who made the appointment.

So far as the analysis of the soil or samples of different soils are concerned the work, which is long and tedious, can be more readily and cheaply performed here than in Ceylon, with the advantage of having a great number of previous analyses for *comparison*; and I am sure that Mr. Bamber, with whom I am personally acquainted, will fully bear me out in this remark.

What cannot be done however at all by home Chemists and what I have endeavoured for so many years to impress upon planters is the work of local, personal and daily research into the chemical principles of tea-making by a persevering, industrious and fully qualified man such as I believe the planters have in Mr. Bamber. It would be a most unfortunate mistake if the time of such a man were to be taken up in the analysis of soils from different estates.

It is not so much the making of soil analysis that is difficult, but rather the difficulty of having sufficient previous knowledge of the composition of really good estates, so that one can make a practical comparison.

I am reminded of a distinguished Dimbula Planter who met me during my official tour through the planting districts in . . . and was very anxious that I should visit his estate in order as he said that I should analyse the soil on the spot and who was greatly disappointed when informed that such an arrangement would be impossible on account of the absence of the requisite apparatus for performing the chemical analysis and the time that such analysis would require.

If the planters would take my suggestion about a matter that I have been thinking out for years, Mr. Bamber should be allowed to make his own selection of a well-appointed factory in reasonable distance of his bungalow at Hatton, and where day by day he would superintend the manufacture of tea according to his own views, carefully analysing the natural leaf and the prepared leaf during the different stages of manufacture, with due regard to the temperature and the humidity of the air in the several processes.

Travelling about the districts afterwards may be useful, but until some practical work in the factory, aided by chemical analysis in the Laboratory close at hand, has been completed, it will only be a waste of valuable time to go from place to place.

All scientific investigations must be carried on in properly arranged works and laboratories and according to a definite pre-arranged plan, and under careful personal supervision; otherwise no usefnl results could possibly be obtained.

I feel sure that Mr. Bamber will cordially support me in these suggestions and probably will have anticipated me in these remarks; if so, they will be useful in supporting his own views; but having taken a great personal interest in the importance of instituting chemical research in the manufacture of tea I felt that the opportunity favoured a definite statement in regard to the most practical way of carrying out the same, and I trust these lines will be accepted in the same spirit as they have been written.

Analytical Laboratory,
79, Mark Lane, London, E. C.,
September 23rd, 1898.

John Hughes, F.I.C.

THE AVAILABLENESS OF ATMOSPHERIC NITROGEN FOR AGRICULTURAL PURPOSES.

A Ceylon contemporary publishes the following communicated paper, with the signature "C. D.":—

It is generally known that plants owe their nitrogenous food to the circulating nitrogen among plants, animals, and the soil, and that with this circulation the nitrogen of the atmosphere has very little connection: in other words, that it is the decomposition of organic matter and the nitrification of the organic nitrogen contained in it that furnish the soil with the nitrates which are ultimately available for absorption by the roots in the small proportion of ammonia and nitric acid which are held to be directly absorbed by the leaves.

The comparatively small contributions which are made by atmospheric nitrogen to the stock of nitrogenous food are due to the combination of the nitrogen and oxygen through natural electric discharges, and to the fixation of nitrogen by the bacteroids (root bacteria) found in the root tubercles in certain plants. These phenomena are recognized as the only two original sources of combined nitrogen to the plant, imparting, as they do, compounds directly derived from the elementary nitrogen of the atmosphere into the general circulation of nitrogen through soil, plant and animal. The possibility of making use of these two natural processes, or artificially reproducing their results, so as to render the agriculturist altogether independent of the nitrogenous fertilizers now in demand, is an important speculative problem. Indeed, in the case of the action of root bacteria in storing up atmospheric nitrogen in the tissues of certain plants, the process has been practically applied for fertilizing the soil by using nitrogen-collecting plants either in rotation in the case of annuals, or as a mixed crop in the case of perennials, so as to secure the results of their action on crops that follow or grow contemporaneously with them. The attempt to facilitate this action by means of pure cultures of root-bacteria ("nitragin") has so far not produced sufficiently reliable results warranted to make the use of inoculating media of any practical value.

As regards the other original source of combined nitrogen to the plant, it has remained for Sir William Crookes, in his address before the British Association, to declare his belief in the possibility of artificially producing the combined nitrogen for which we are now indebted to the action of natural electric discharges, whenever they occur, in the atmosphere. This he proposes to do by utilizing water power to generate an electric current for bringing about the oxidation of nitrogen and thereby the production of nitric acid.

Chemists tell us that the process of assimilation in plants, whereby they exhaust the carbonic acid of the atmosphere and replace it with oxygen, is necessary for preserving the air we breathe, in a condition suitable for the requirements of animal life, which would otherwise be rendered intolerable if no such counteraction went on, and if the process of animal respiration continued to exhaust the oxygen and replace it with carbonic acid gas. Chemists also refer to nitrogen as an eminently inert substance, whose rôle as a constituent of the atmosphere is as a dilutent of the oxygen (the two gases existing respectively in the practically constant proportion of 4 to 1) since an atmosphere of pure oxygen gas, or even one in which oxygen predominated would be unsuitable for animal respiration. If we may be permitted to speculate with Sir William Crookes, how, we would ask, is the constant ratio of nitrogen and oxygen to be maintained in the atmosphere, and the composition of the air preserved in the most suitable condition, if agriculture all the world over is to flourish by the exhaustion of atmospheric nitrogen? Where would be the counteraction by which the supply of the dilutent is to be kept up, and the composition of the air remain unchanged, if it is to be drawn into the general circulation of combined nitrogen and never drawn out again in the elementary condition?

So far, as we have stated, the nitrogen of the air has been looked upon as a neutral element, and it appears strange to the student of nature to think of such a character, for so valuable a substance, taking part as it does in the constitution of the highest organic compounds. But who can say what discoveries have yet to be made through scientific research in the future, after we have seen "argon" eluding the search light of Chemistry all these many years since the first chemist entered his laboratory? Who knows but that there will yet be an explanation of the apparently anomalous character with which scientific men invest nitrogen, and that we shall learn what would seem to be less inconsistent with the designing power of Nature, that atmospheric nitrogen also plays its part in the general economy of the world, or at least as Sir William Crookes predicts, that it is destined to do so, while still subserving its purpose in maintaining a suitable atmosphere for the benefit of mankind and the inferior animals, if its presence is indeed really necessary for this end?

It may be noted, in perusing the communicated article on this subject in last night's issue, that criticism can be anticipated to the effect that the argument as to the exhaustion of atmospheric nitrogen by its appropriation for the nutrition of plants applies equally well to the exhaustion of the free oxygen of the air, since the combination of the two elements through elastic agency, and their ultimate exhaustion as free gases, would be in a constant ratio. The necessity for speculation as to the return of elementary nitrogen to the atmosphere would there also stand in the case of elementary oxygen, in order to account for the preservation of a uniform atmosphere for the respiration of animals. This would demand a further hypothesis! And how is it to be supplied?

Sir Wm. Crookes refers to the sea as the receptacle for the almost incalculable amount of organic nitrogen which reaches it under present conditions of civilized life, and points to the immense loss of nitrogen to the plant and soil through the disposal of sewerage by this means—a factor which tends to bring about that crisis in Agriculture which he predicts.

Agricultural Chemistry further tells us that the largest loss of nitrogen from the soil occurs by the washing away of nitrates—among the most soluble of salts—which ultimately reach the sea.

Is it to be supposed, then, that the greater sea which is being enriched at the expense of the lesser land, is holding these reserves of nitrogenous compounds for a future generation,—to be redeposited through geological agency in the form of natural formations of nitrate as in Chili? Or should we rather give further licence to our speculative powers and think of the sea as the medium by which elementary nitrogen and oxygen are returned, through chemical or organic agency, to the atmosphere, just as it is the medium, though, in a different sense, by which the water lost from the earth is given up to the atmosphere to be returned as rain. The denitrification theory, so much discussed of late, teaches us that certain organisms, the denitrifying bacteria, are instrumental to some extent in supplying the atmosphere with free nitrogen derived from the organic matter in the soil, and why may not a similar phenomenon occur as regards the immense amount of nitrogenous compounds which reaches the sea? Such a hypothesis may be supposed to equally balance the profit and loss accounts of soil and air as regards their nitrogen and oxygen, but how dare we adopt it?—C.D.

PRODUCE AND PLANTING.

Just Going to Begin. So much has been written of late about the supreme efforts which are to be put forth in China for the rehabilitation of the tea trade that one wonders when the attempt is to be made. Amoy would not be a bad district for the experiment. But the likin is the obstacle. For some years this Amoy was one of the chief centres of the tea trade of China, the leaf exported from there having a character of its own. But this trade is now disappearing. According to the last report of the British Consul there, Amoy exported in 1877 over 12 million pounds of tea; in 1896 the export was less than 4½ million pounds, and last year it fell to 1,616,933 pounds, and he believes that soon tea will cease to be a product of the district. There is little doubt that the extinction of the industry is due to the ruinous system of taxation. The heavily taxed Amoy black tea cannot compete with the untaxed India Ceylon teas, while the dilatory and vexatious modes of collecti likin lead to much of the leaf becoming damaged during transi the Amoy district tea gardens are to be seen which have run to the comfortable homesteads of the once prosperous tea-growers in ruins. "Unless the system of taxation is reformed the pro of this district are somewhat gloomy. There is as yet no indi of such reform. The only idea the authorities seem to have endeavour to obtain from the decaying industries as large a re as they obtained from them when in a more flourishing cond and the only means to this end they seem able to devise increase the stringency with which the likin is collected, an accelerate the total extinction of the trade." In a special repo the tea trade, which is appended by the Consul, it is stated tha best expert known in Ceylon after visiting the Amoy tea di stated that under no circumstances could they be revived so enable them to stand the taxation at present levied in China.

Pushing China Tea. Chinese tea importers, or those who exclusively in the China product, ar pared to follow the example of their Indian and Ceylon riva the forthcoming Grocers' Exhibition at the Agricultural Ha exhibitor will have an attractive stand in the form of a Chine house; the attendants will be real Chinamen and women dres their native costume.

One-sided Congratulation. The rising rupee, like the rising s hailed in some quarters with acclar as if it were a boon to the whole of To the official classes it is no doubt a great gain, and they can to be jubilant over it. To the producer it is a very serious mat deed, and he cannot shout in unison with those who extol the w of the financial policy of the Indian Government. The *Daily G* in a note congratulatory of the rupee having turned sixteen omitted any reference to the other side of the picture. A corre dent, "Rungli Ting," supplies this omission by a letter in wh points out that there is another and important side to the qu viz., the industries and export trades of India. "The balance- of the various tea companies for last year," says "Rungli T "with their decreased dividends, give a fair indication, and penny rise in the value of the rupee, sustained throughout the necessitates those interested finding a further sum of be £350,000 and £400,000 to work the estates. This is an ab loss, there being no commensurate rise in values, while the ad of a gold standard means over three millions sterling per a and consequently ruination to the tea industry throughou Indian possessions. What was waste land in Assam and C less than fifty years ago has been brought into cultivation at of 35 millions of English capital, and is now giving employm over one million natives recruited from the congested distri Bengal, and some thousands of Englishmen as managers, assis &c. The 450,000 to 500,000 acres of land so cultivated brin Indian Government in a yearly rental of no mean sum. The p inflated value of the rupee is starving us. A gold standard assuredly kill one goose that lays a golden egg. Can the I Government afford to do this? I take the material side o

PLANTING BOOKS.

Map of Ceylon Tea Estates Rs.9; colored Rs.10; Mounted in case Map of Ceylon Plantations, Plain Rs.8. Inga Va, Rs.2-8. Areca As.12. Cocoanut Planter's Manual, Rs.4-10. Ceylon Manual of Ch Analyses, Rs.3-10. Tobacco Cultivation, Rs.3-10. India Rubber (the Press). Coffee Planter's Manual (now in the Press). All about Rs.3-10. Coffee Tree and its Enemies, Rs.1-8. All about Grub, Brazil as a Coffee Country, Rs.1-8. Cardamoms, Re.1. Ceylon Soils and Manures, Rs.1-9. All about Aloe and Ramie Fibre, Re.1. Buildings, Rs.4-4. Coffee and Chicory, Rs.1-13. Coffee Cultiva Ceylon, As.5. Tea Cultivation and Manufacture, As.5. Tea Cultiva Ceylon, As.6. Tea at high elevations in Ceylon, As.3. Manuring Estates, As.8. To Economise Labour Supply, As.12. Planting, Prun Preparation of Tea, As.12. Salt for Agriculture, As.8. Cocoa, Coca its Salt, Rs.2. On the Importance of Lining, As.4.

Apply "Observer Office,"
Colombo.

MILLIE & REDMOND, late P. THOMPSON & CO., *Ootacamund, Engineers and Contractors.*

estion and leave sentiment to public opinion. Notwithstanding bounty given to other countries by placing a fictitious value on rupee, we Indian planters have held our own against China, an, and other tea-producing countries in a fair and square fight ending over half a century, meeting each rise in exchange by ering the cost of production by machinery and other means: but this respect we have touched bottom. With Indian exchange sixteen pence, and Chinese and other silver-using countries at ten ce (or less), we can exist; with the adoption of a gold standard, latter rate will still obtain, while we go up to twenty-four ce, or receive Rs.1,000 for £100, as against Rs.2,400. With such nsummation we may honourably surrender, not by reason of ng beaten, but because we have been told to the enemy by our nds (?) the Indian Government. The same applies to ordinary orts from India, also produced in other silver-using countries ere the same goods and of equal value are offered. £100 will mand the purchase in India at the present time of 1,500 silver ces worth of commodities, elsewhere 2,400. Is it likely money find its way to India on such terms? To put the position in a shell, what the Germans have done for our sugar industry in West our own Government threatens to do for our tea ustry in the East."

Market Worth Developing.

With reference to the statement in our last week's issue that the tea procurable at railway refreshment rooms left something be desired in the way of excellence, it is only fair to state that ne refreshment rooms at railway stations supply better tea than ers. Where the tea and coffee is of good quality and properly wed the demand constantly increasing. A Leeds paper has ently instituted inquiry into the matter, and gathers the informa- that trays of tea and coffee, owing to the excellent system of plying them to passengers in railway carriages on the North- tern Railway, are in great demand. The manageress of the rth-Eastern Refreshment Rooms states that about twenty years , when she began her experience, there was not one cup of tea or ee ordered where now there are a hundred. The refreshment ms of this company do a large trade at York, Harrogate, Darling- , and Newcastle by meeting the trains with trays of tea, coffee, light refreshments, while at none of these stations are intoxi- ts sold outside the refreshment rooms.

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go State Coffee.

The poor quality of the coffee despatched to Antwerp from the Congo Free State last uary has now been followed by a further shipment, which experts are to be a considerable improvement over the previous samples ed at the beginning of the year. The Congo coffee, whilst mbling the Ambriz product cultivated in the Portuguese colonies frica, is said to be far superior to it. It has a pleasant although ewhat unusual, taste, and by admixture will facilitate the bur- process of other and better qualities of berry where the flavour ot affected. The tests made show generally that considerable gress has been made in the method of cultivation and treatment he coffee raised near Stanley Falls.

New Departure.

Boards of Guardians have not so far as we are aware any special qualifications as tasters, but they evidently think they can acquire some. At meeting of the Spalding Board of Guardians on Monday, the dians adopted a new method of determining the tea tenders ived from London and local tradesmen. The examination of samples as hitherto was not considered a sufficient test of the ity, and it was decided that tea should be brewed from each ple, and cups handed round to a committee appointed to adjudi- . The committee of four appointed included one lady guardian. . & C. *Mail.*

THE POSITION OF THE INDIAN TEA INDUSTRY.

Investors in tea companies who are not in a position to glean ise information as to the cause of the decline in the value of shares will read with interest the comments put forth by the *ncial Times* on the present position of the tea industry.

The small profits made during the past year by Indian Tea panies generally compared with previous years have naturally ed some anxiety among those who favour this kind of invest- t, and some doubt has been expressed as to the actual cause for the diminished returns. Over-production has for some little time been held out as a danger, and there is undoubtedly a well-founded probability that unless a stop be put to the continued extension of gardens, production will far outstrip consumption. But that this cause was not entirely responsible for the comparatively poor results of the past year is evident from the statements made at the recent meeting of the Indian Tea Association held at Calcutta, the full report of the proceedings at which is just to hand by Mail. First there was the famine, which, although it benefited the industry by making labour cheap and abundant, yet adversely affected the profits by putting up the price of food. One company in Assam, the Chairman stated, had to write off for loss on rice a sum equal to about $1\frac{3}{4}$ per cent. of its capital, and in other instances severe inroads were made on the returns from this cause alone. The plague also, though it did not invade the tea districts, temporarily dislocated business, but the scare gradually subsided, and matters are once more assuming their normal condition. The currency question, however, is regarded as of most vital importance to the tea industry which has felt severely the effects of the inflated exchange, and it is only natural that the chairman should have devoted considerable time to discussing the situation. He calculated that an increase of every penny in exchange made a difference to the tea industry of £250,000, and, therefore, taking a basis of 1*s.* 2*d.*, the average rate for 1895, the industry has lost in consequence of the inflation of exchange close on one million pounds sterling during the years 1896 to 1898. He also pointed out that if the committee decided to support the Government in its endeavour to maintain a rate of 1*s.* 4*d.* for its Council bills, the industries of India had, in his opinion, hard times before them—a result which would not only enable China to make a strong effort to recover some of her lost ground in the tea market, but would encourage the establishment of other industries in the Celestial Empire.

"The Chairman, indeed, drew a gloomy picture of the future. He would not, he said, be surprised to see before many years are over the reorganisation of Chinese industries, the opening of collieries and the erection of jute and cotton mills by Europeans, which will displace the productions of India if she continue to be handicapped by an artificial exchange. It is to be hoped that these prognostications will not be fulfilled to India's disadvantage, but, in view of the enormous strides made in tea planting in our great dependency, and of the injury caused by the course of exchange, it is scarcely surprising that Mr. Anderson took a somewhat pessimistic tone in regard to the outlook. The commencement of the industry only dates back some thirty-five years, and since then it has advanced by leaps and bounds. At first the progress was steady. Thus in 1863, a crop of about three million pounds was produced; in 1883 it has risen to 59 millions, but last year it amounted to no less than 151 million pounds, and in the meantime had practically ousted the rival Chinese product from the home market: At the present time it is estimated that over £20,000,000 is invested in tea planting, and when it is remembered that it not only forms a source of revenue to Government, but also supports over 1,000,000 natives mostly imported from congested districts, it is evident that due consideration should be paid to the interests of the industry. On the other hand, there are other equally important features to be taken into account, and the question will doubtless be decided on the basis of the greatest good to the greatest number. At the same time it is interesting to note the suggestions for assisting the trade which were offered at the meeting. Mr. Anderson expressed the opinion that the high water mark of the home demand had not yet been touched, and that if the duty on British grown tea were abolished, or, at any rate, greatly reduced, so as to admit of the product being sold at a lower price, a great domand would arise for cheap tea from the artisan and labouring classes in Great Britain. This suggestion is certainly in the direction of inter-Imperial commerce, and as such, would no doubt meet with the appproval of imperial Federationists.

"Desirable, however, as it is to see our colonies and dependencies drawn into closer union, there are obvious difficulties raised by the proposal. Perhaps not the least of these is the fact that during the past year the revenue received by the United Kingdom from the duty on British grown teas amounted to over £3,500,000, and in view of the largely increased expenditure on the Navy, it is scarcely probable that Government will see its way to grant any very material reduction. The opinion that a cheaper article would create a larger demand seems borne out by past experience. In 1890, for instance, a reduction of duty by 2*d.* in the lb. was accompanied by an

increased consumption of 7 per cent. between 1889 and 1891, while a slight rise in the price also occurred, and Sir Patrick Playfair expressed his belief that if the abolition of duty in addition to leaping to greater consumption, had the effect, however temporary, of arresting the fall in values, it might to some extent counterbalance the inconvenience that must at the outset be associated with any legislation affecting the currency system of the country. A difference of ½*d.* per lb. in value, it was stated, was nearly as important as a variation of 1*d.* in exchange, taking current standard values at 8½*d.* per lb. and 1*s.* 4*d.* per rupee. These views, however, will no doubt be fully expounded before the Currency Commission, and it remains to be seen what decision will be arrived at in the matter. Perhaps the most encouraging statement at the meeting was the Chairman's remarks in regard to the Indian and Ceylon tea campaign in the States. According to Mr. Anderson, the consumption of the British grown leaf in North America has nearly quadrupled since 1892, and as a large quantity of these teas is used for blending with those of China and Japan, it is hoped that in the near future we may see a repetition of what took place in this country, and that the British-grown tea will eventually displace its rivals in the Great Republic. That there is a promising field across the Atlantic is obvious to anyone who has visited the country. Among the agriculturists especially of the North American Continent tea is regularly drunk at every meal. Until recently the green teas of China and Japan have been the favourite leaf, but during the past year or so experience has shown that the North American is not indissolubly wedded to the Chinese product, and further energetic efforts to introduce British-grown teas can scarcely fail to largely increase the consumption of our colonial-grown produce."

The following letter from Mr. Geo. Seton, which appeared in the *Financial Times* of Tuesday last, is by way of commentary on the above: "Your interesting article of Friday last on 'the Indian Tea Industry' directs attention, quite properly, to certain possible dangers which threaten this industry, as well as to remedies for these dangers which appear to be within reach. As you truly remark, over-production has for some time 'been held out as a danger.' It might perhaps be more correct to say that it has constituted a grave danger. The prospect, however, of further and increasing danger on this score may now (it is generally admitted) be regarded as being less likely, owing to the decided check which has been given to extension by the unprofitableness of the past season. It may, indeed, be fairly contended that, instead of production being likely to largely outstrip consumption, a steadily increasing relief may be looked for, owing to the strides that are being made in introducing both Indian and Ceylon teas into new foreign markets, as is shown by Board of Trade figures, especially those of the past three months. Your remarks regarding the opening out of North America as a fresh market of consumption are quite correct. May I point out, however, that there are other even more important markets now showing signs of opening up, chief among which are, first, the great Russian Empire; Germany and Scandinavia coming next, with the various Latin countries all likely, in time, to follow. Taking all these together, as well as the widespread British colonies—all expending in population—it may safely be said that the fresh outlets which may be looked for are practically boundless in extent. But, of course, further development of these markets will require time, much energy, and the spending of a good deal of money, either on the part of the 'Liptons,' 'Mazawattees,' and other large distributing agencies, or by the planting communities themselves. As regards the further reduction of the duty, from the purely selfish point of view of the planter, there does not appear to be any very urgent need of this, as the tendency of any such reduction would probably be rather to put a premium on the reintroduction of cheap China teas. As regards the currency question, on which you, sir, appear to have an open mind, the rise in exchange, while apparently telling against profit, will no doubt before long be accompanied by some compensating reduction in rupee cost of production in the shape of lower costs of food grains for the labourers—equivalent, virtually, to reduced coolie wages, while even European salaries, and all European stores, &c., will tend to cost less in rupees—just as they tended upwards during the decline in the value of the rupee."

The London correspondent of the *Ceylon Observer*, ignoring the fact that there is divided opinion amongst tea planters on the duty question, contributes the following reply to Mr. Seton corespondent, Mr. George Seton, is scarcely up to date i markr upon the view tea planters take of the tea duty. 'As regards the further reduction of the duty from the pure point of view of the planter, there does not appear to be urgent need of this, as the tendency of any such reducti probably be rather to put a premium on the re-introduction China teas.' The British India tea planter no longer Chinaman's competition in the British isles. It was at th meeting in the Ceylon Association in London in June last Vice-president Mr. H. K. Rutherford), in a long and in speech upon tea prospects, strongly advocated combined the Planters' Association of Ceylon and India, to agitate reduction, but the total abolition of the tea duty. The now before the Planters' Association in Ceylon, and no time lost in putting it into form, so that relief may be hoped spring. The United Planters' Association of Southern I already passed a resolution in favour of the movement, campaign will assuredly be carried out with that activi British tea planters put into everything they undertake."

CEYLON TEA IN AUSTRIA-HUNGARY.

We give below the report of Mr, G. A. Marinitsch, who was by the Planters' Association of Ceylon to make inquiries best means of extending the consumption of Ceylon tea in and Hungary:—

Kandy, October 6th

Sir,—I enclose copy of Report which has been receiv Mr. G. A. Marinitsch on the subject of his enquiries as to means of extending the consumption of Ceylon Tea in Au Hungary, together with the annexures therein referred t Sir, yours faithfully.

A. PHI

Secy. "Thirty Comm

Vienna, *September 14th*

"Thirty Committee,"

The Chairman,

In compliance with your instructions dated the 9th July pointing me the authorized Representative of the Ceylon Association, for the purpose of making enquiries as to the be of extending the consumption of Ceylon tea in the Austro-H Empire, I beg to submit the following report:—

After a stay of four days at Trieste I proceeded to Vienn city I made my head-quarters up to the 6th July, visitin meanwhile Budapest, Prague, Lemberg, Krakau, Karlsbad burg, Pilsen, etc., etc., all being important centres of the M and at which places I made adequate sojourns.

Everywhere I met with a hearty reception and ready res my enquiries and I desire to place here on record my deep gratitude to Herr Ritter von Mauthner (President of the Chamber of Commerce), Herren Hofrath Ebner von Eben Baron Alexander Koller (of the Imperial and Royal Board o Herr Ritter von Jarsch, General Agent Australian Lloyds C Herr Hemrich Klinger and a host of others who helped a g in affording me statistical and other information and supp with letters of introduction.

I enclose herein two Statistical Statements.

(*a*) Showing the quantities of tea entered for Home cons during the years 1894 to 1897 inclusive,

(*b*) Showing the population of the Empire and giving cities having more than 50,000 inhabitants.

The consumption of tea in Austria-Hungary may at fi appear a small one, if calculated in proportion to the popula if one would take into consideration that coffee (of which ov tons were imported in 1897) is *decidedly the beverage* of the and also the existence of large tracts of wine producing distr quantity of tea consumed should be regarded as satisfactory

From the statement A you will observe that the figures year, when contrasted with those of 1894, show an increase sumption of about 200,000 lb., equal to 10 per cent. in the four years, and such a result may be safely taken as a good the future chances of tea drinking in the country.

There is certainly a distinct inclination towards tea-drinking and e casual observer cannot fail to detect the existence of a desire on e part of some people to drink tea as an alternative to coffee at rtain times, and this change of habit is especially noticeable in the tels patronized by the indigenous population.

So far, however, the wants of the trade have been supplied by ina, the product of which country holds sway as you will gather m the annexed A; the share taken by our own staple being indeed ry small and hardly worth regarding.

I endeavoured to find out the reasons for such a discrepancy, pecially considering that Ceylon tea is well-known to the principal alers, two of whom indeed take nothing else for their private use.

In the course of my inquiries I certainly heard many views, and s also confronted with conflicting statements due no doubt to the sire on the part of dealers to protect "vested interests," but all the me there appears to be a consensus of opinion that Ceylon teas are strong, give too dark a liquor and have a rather too pungent taste compared to the delicate China teas hitherto imported and to ich the palates of the majority of the consumers are accustomed. ere is no doubt that the teas imported from China and sold here in ail, are of very good quality, and of this I had the corroboration the report given by Messrs. G. White & Co., upon a collection of as Mr. Ryan and myself purchased at Vienna and sent on to Mr. . Martin Leake for valuation.

I report the foregoing merely as what is being said by the dealers, t being in any way prepared to back altogether their opinion, cause from my own experience in this line, I have always found at Ceylon teas of superior quality and of high cultivation have eased those who gave to them an earnest trial, and I fully believe, consequence, that Ceylon teas will be appreciated and consumed larger quantities by the bulk of the public, if only properly brought fore them, which has not been the case up to this time for reasons ich it is needless to enquire into more than what is disclosed by e opening remarks of this paragraph, taken in connection with e one immediately preceding.

In actual working however the duty by sea comes to $10\frac{1}{2}d.$ owing the system of collecting the same, which consists of taking the oss weight of the packages deducting therefrom 23 per cent. d charging duty on the remainder 77 per cent. which are consi- red to represent the actual net contents but which are invariably uch more, and thus the duty becomes the heavier in proportion the packages being smaller, so much that for one lb. packets the ty may be fully reckoned at 1*s.* 2*d.* per lb.

This is certainly very excessive, and in the interests of Ceylon I deemed it a good thing to write to call the attention of the thorities to such heavy taxation which is a distinct hindrance to ade.

Unfortunately for our staple the duty on tea in Austria is very avy and certainly acts as a barrier to the natural expansion of the w noticeable tea drinking proclivities, and so long as the duty mains as it is, there are no hopes of a development greater than at is shown by the statistical informations.

Duty on tea in Austria-Hnnkary is as follows:—For teas import- by sea (Austrian Ports) 90 Kreuzers in Gold per Kilogram, ual to $9\frac{3}{4}d.$ per lb. For teas imported by land the duty is 10 per nt. dearer.

I shall not concern myself with the latter as it does not affect r interests nor is it of any real significance as it falls upon im- rtations of so called Caravan Tea and also of small parcels of a coming from abroad per parcel post.

I address therefare a detailed circular-letter to the Principal amber of Commerce of the Monarchy and posted also copies of me to the Imperial and Royal Ministries of Finance and of mmerce. Herewith enclosed I send you also a copy of the said rcular to which I have attached a précis translation for your in- rmation, hoping that you will approve of my action. I have ceived many replies, some being mere acknowledgments, others omising to consider my remarks, but of all answers, the most portant, to my mind, is the one vouchsafed by the Vienna amber of Commerce, and of which I send you the original with translation attached, and from same you will gather that the ienna Chamber has recommended to the Government a reduction 50 per cent. all round in the rate of duty on tea. This very thoritative suggestion in support of my letter-circular will cer- inly produce a good impression with the Government, and I am hopes to hear that the recommended reduction in the tea duty ay become a *fait accompli* some time next year. In the course of an interview I have had since with the President of the Vienna Chamber of Commerce, I have acquired further persuasion that we have in him a good ally in the endeavours to obtain a reduction of the duty. All the teas imported by sea come *viâ* Trieste, where every facility is offered to the trade in the same way as obtained in London and Hamburg, there being a proportion of a huge warehouse specially devoted to the bonding of tea and where also importers can carry on their packing and blending operations, paying duty as the teas go out of the warehouse, and these arrangements give much satisfaction.

I have had interviews with officials at the Board of Trade, who have shown all disposition to see that the tea trade be fostered, and I gathered from them that the Railway Companies will be approached with some recommendations for the treatment of tea transports, and from the Austrian Lloyd Co.'s Directors I have been promised that instructions will be given to the effect that tea be especially attended to. Altogether, I am glad to say that from all quarters I have received assurances testifying to the good disposition entertained towards the development of the tea trade, and the Press is generally in favour of such an expansion.

As a noticeable feature that Ceylon Tea is now being taken into serious consideration I send you a number of the Railway *Gazette* where appears an article referring to the projected new line of the Lloyd Co. between Trieste and Calcutta *viâ* Colombo, and in which the writer refers to Ceylon Tea, as one of the principal articles to be carried by the steamers on that line—considering that I had not the occasion of speaking to the writer of the article, his mention of Ceylon Tea in such a prominent manner shows evidence of the great interest that is being taken in our staple product.

Trusting that the foregoing remarks about the Tea trade in Austria-Hungary may convey an idea of the state in which things stand at present I will now come to the question of the best means for increasing the consumption of Ceylon teas in this Empire.

The only practical manner to attain such a praiseworthy object is to advertise, but the question arises whether the Tea trade in Austria is sufficiently large to warrant any outlay and whether prospects for future development of Ceylon tea here are favourable? My answer will be in the affirmative, there being a distinct inclination noticeable towards tea drinking and such a tendency can only be fostered and increased by advertisements. The desired results will not certainly be immediate, but all chances are in favour of Ceylon tea. The general taste appears now to be entering into a transitory phase, and the opportunity is a very goodone for giving it a direction towards Ceylon tea. As regards the way to be adopted, I have given to the question my best consideration, and for the present I do not think it will be possible to carry out here the arrangement wherewith the Thirty Committee lay out a certain sum for advertising Ceylon tea, provided the parties thus benefited do, on their side, spend an equal sum as that granted by the Committee. The tea trade in Austria is fully cognizant of the qualities of Ceylon tea, but all the same, it will be difficult to find any reliable firm that will promise to deal solely with our staple to the exclusion of China sorts, for, at the very best, the sale will be small at the commencement. To entrust a beginner with Ceylon is not advisable, nor will any old established tea dealer discard China all at once in favour of Ceylon, lest he should lose his clients and ruin his business.

Now, my view of the question is to leave the dealers severely alone and simply advertise "Ceylon Tea" in leading papers, afterwards adding a liberal display of posters and occasionally getting short notices published in the body of the papers relating the great progress made by Ceylon tea all over the world. By this means the attention of the general public will be decidedly attracted to a good purpose, for, judging by human nature many will be those who in consequence of reading the advertisement will ask their grocers for Ceylon tea, and it will not take long before all grocers and retailers will purchase and stock Ceylon tea and sell it as such and not with any other high-flown title. Then the time will come for the Thirty Committee to negotiate with some dealer or dealers who will be prepared to stock solely Ceylon teas and receive a subsidy, in the shape of free advertisements, in exchange of their services to Ceylon tea. The system has been adopted with excellent results for many other new articles such as cacao, soaps, and the like, the introduction of which appeared at the beginning as a work of education surrounded by uphill and other difficulties, but which were soon surmounted by the co-operation of the public curiosity, which is a prime factor in the introduction of new things; I do not mean any disrespect to

Ceylon tea, certainly not, but I reckon a good deal upon human curiosity to help us in the achievement of the object for which we are all striving, namely, the development of Ceylon tea consumption in Foreign Countries.

With regard to the estimates, etc., etc., I cannot quote the figures as I have given all particulars to Mr. Ryan, who will separetely write his views,—I am, dear Sir, yours faithfully,

G. A. MARINITSCH.

PRECIS OF CIRCULAR LETTERS ADDRESSED TO 24 CHAMBERS OF COMMERCE AND INDUSTRY IN AUSTRIA AND HUNGARY.

VIENNA, 1st June, 1898.

By request of the Ceylon Planters' Association I have just concluded a voyage through the most important centres of the Monarchy for the purpose of studying the Tea trade, and I deem it in the interest of the trade to submit to you the result of my enquiries, in the course of which I acquired the very gratifying impression that the consumption of tea was distinctly on the increase, and there were visible signs of a decided inclination towards this beverage.

I was struck, however, by the very heavy duty charged upon tea, and which on the average comes to over 75 per cent. *ad valorem*, and no doubt this heavy taxation prevents the much desired development of the trade.

Doubtless when the tariff was framed, tea was considered a luxury, and, as such, was heavily taxed, but now things have changed, and, thanks to careful cultivation and most perfect machines, tea can be produced cheaper and of better quality and form, now part of everyday requirements in almost every household in the world.

I would therefore suggest that the tariff upon tea be reduced and brought to a point in proportion to other duties now existing; and to stimulate direct importation from the centres of production, I would further suggest that duty on such teas be reduced by 50 per cent., whilst remaining the same as now for teas imported by land or otherwise.

Once the tea duty is reduced, the importations of the leaf will be rendered easier and cheaper. Thus the poorer classes will be the first to benefit from such a reduction, besides avoiding the trade resorting to manipulations, which in some cases contains teas quite deleterious to health.

In the end the State will also be the gainer by the enhanced importations that are sure to follow a reduced duty.

Finally, I beg to point out that in Belgium the tea duty has been abolished since the 1st January of this year.

REPLY.

Translation of reply received from the Chamber of Commerce in Vienna:—

With reference to your letter of 1st June, de pras. z. 6,337 with regard to reduction of the duty on tea in Austria-Hungary, the undersigned Institute beg to say that it has asked the k. k. Ministry of Commerce to submit the matter to the Industrial and Agricultural Board, which is an effective corporation for the consideration of alteration on Custom duties, which will meet soon.

The undersigned Institute have recommended that the duty on tea be reduced without regard to the origin, and to be as follows:—

50 kreuzer per kilogramm for tea imported by land, and
45 " " " sea.

(Signed) The Vice-President: KITSCHEIT.
The Secretary: MARESCH.

(*Annexure A.*)

IMPORTS OF TEA INTO AUSTRIA-HUNGARY.

DURING THE YEAR 1894.

		By Land.	By Sea.
Declared value, florins	...	496,065	2,591,635
Totals in 100 kg	...	1,375	7,168
From Germany	...	120	20
England	...	148	12
Russia	...	315	1
China	...	739	6,589
Japan	...	—	14
India and Ceylon	...	11	392
Divers Countries	...	42	140

Totals.—1,913,632 lbs.

1895.

		By Land.	By Sea.
Declared value, florins	...	434,395	2,253,490
Totals in 100 kg	...	1,393	7,646
From Germany	...	113	24
England	...	148	16
From Russia	...	316	2
China	...	739	6,84
Japan	...	—	1
India and Ceylon	...	14	6
Divers countries	...	63	2

Totals.—2,024,736 lb.

1896.

		By Land.	By Se
Declared value, florins	...	418,845	2,086,57
Totals in 100 kg.	...	1,372	7,64
From Germany	...	133	
England	...	189	
Russia	...	302	
China	...	685	7,0
Japan	....	2	
India and Ceylon	...	14	4
Divers countries	...	47	

Totals.—2,018,688 lb.

1897.

		By Land.	By Se
Declared value, florins	...	421,592	2,187,3
Totals in 100 kg.	...	1,381	8,0
From Germany	...	160	
England	...	196	
Russia	...	338	
China	...	626	7,7
Japan	...	—	
India and Ceylon	...	16	2
Divers countries	...	45	

Totals.—2,103,360.

(*Annexure B.*)

Population of the Austro-Hungarian Empire as per last census ... ... Total souls 45,5

Besides to add Population of occupied Provinces of Bosnia and Herzegovina 1,4

*Austria proper	4,500,000
Hungary (including Goatia)... ...	18,500,000
*Bohemia	6,300,000
*Galicia and Bukowina	7,600,000
*Moravia and Silesia	3,000,000
Styria	1,400,000
Divers Provinces	4,200,000

PRINCIPAL CITIES IN THE REALM.

*Vienna	1,750,0
*Budapest	600,0
*Prague	350,0
*Lemberg	150,0
Trieste...	120,0
*Brium	100,0
Graz	125,0
*Krakan	75,0
Pilsen	55,0
*Czernovoitz	55,0
Linz	50,0

*Tea-drinking populations.

COCOA AND ITS ENEMIES IN CEYLON.

THE following is Mr. J. B. Carruthers' Final Report on Disease in Ceylon, now issued by him in continuation of his I Report:—

In preparing a report on the cacao canker, it is difficult to from the facts observed those which teach more clearly the which it is important for cultivators to know, and not to burd pamphlet with an amount of detail which, in some cases, shed a small amount of light on the subject.

I shall endeavour to make this account as popular as is con with accuracy; so that cultivators having a practical a scientific knowledge of cacao, may not lose any information contain.

When my investigations had been in progress for three mo submitted an interim report, and in that described the meth which I endeavoured to discover the nature and life-history disease or diseases attacking cacao, so that in this report, sake of brevity, I need only give the facts arrived at. Any w interested in the processes by which these facts were gained, reading the interim report, trace the method of investigation.

Happily, the statements previously recorded need, in no case, to corrected, and the further information gained as to the life-history the canker fungus, shows that the deductions based on these facts ere trustworthy.

In the first place, I propose to describe the disease as it appears the planter and the effect produced on the tree and its crop; next ving the life-history of the fungus causing it—on the cacao,—the eans by which it spreads, and the conditions favouring it and its crease; and then describe the treatment which, after a series of ried experiments, gave the best curative results—and seems to a reat extent successful; as well as the preventive means which ould ensure that all plantations at present not attacked by the sease, may be kept free from it.

It may be well to state here at once that, in my opinion, the result the investigation has been to show that, though no doubt the resence of the canker will mean an extra expense in cultivation hough not a serious one), it in no way threatens the profitable ltivation of cacao, and we may hope that it will lead to an nprovement in methods and a consequent increase of yield. Of urse, an unknown enemy is always more alarming, but now that e have a knowledge of the nature of the evil, it loses, to a great tent, its terror. The appearance of cacao, both of the Forastero nd Criollo varieties, is well-known to all cultivators, and the umber of deaths due to drought and the attack of insects and fungi as, in Ceylon, extremely small until about five or six years ago, hen some planters noticed a great increase in the number of sual deaths; and this increase went on until it became a most rious matter, and seemed to endanger the profitable cultivation cacao in Ceylon. It was not until the disease had done damage a very considerable extent, that scientific help was asked for, and, doubt, the loss might have been spared in great measure if vestigations had been made soon after the disease appeared, and ot delayed until it had spread over such a large area. This, owever, is nearly always the history of such plant diseases, and ill be so until the experience has been dearly bought—that in lant-life just as in human sanitation, sporadic diseases should be refully observed and measures taken, to prevent them becoming pidemic. It is a very self-evident fact,—but one that requires iteration, that the usual method of cultivation, viz., the unnatural owding-together of one species—favours the rapid spread of iseases due to foreign organisms; and, therefore, makes prompt easures the more necessary.

It is not very easy to estimate the amount of damage done, as, in any cases, by supplying new plants, the estates have partially re-overed, but there is no doubt that a serious monetary loss has been curred, both by decrease of the crop and expense of supplying up iseased estates. I have visited some 40 estates in all districts of eylon, and, though I am glad to say some places have, for reasons terwards mentioned, not been attacked at all—yet in other cases, me estates have been practically wiped out by the canker. That e canker is confined to the stem and branches of the cacao, and oes not affect the roots, is clearly shown by the following facts:—st, when suckers are formed from the stumps of diseased trees cut own, they are quite healthy, and show no sign of disease. 2ndly, ew cacao plants put in a few inches from the diseased trees, grow igorously and without disease, though the roots of the two plants ust be touching in many places; and 3rdly, the examination of any roots of cankered trees showed no trace of the fungus, and all tempts to induce it in roots, by inoculation, failed.

The first sign of the disease apparent to the naked eye is a darken-g of a portion of the cortex of the tree, caused by an excess of oisture immediately below it, and this is usually not accompanied y any "shuck" appearance in the tree. In some cases the cortex has een pierced by insects at the moist places, and this causes an ex-dation at each puncture of a drop of claret-coloured fluid which, hen it runs down the cortex and dries, gives the tree a rusty ap-earance over the dark-spot. If the cortex be shaved off, the tissue ill be found to be soft and of a darkish claret or neutral colour and o full of moisture, that small drops exude from all over the cut sur-ce, which feels soapy and moist to the touch. This condition is due the presence of the mycelium or roots of the fungus in the bark ssues in large quantity. The tree, to replace the damage done to s tissues, sends an abnormal amount of sap to the diseased spot. he existence of such a moist area in the bark means that the dis-se has been for some time—a varying time: in some cases, weeks; others months—in the tree, as it is not until the fungus has got a ood hold of the tissues that such an effect is produced.

This characteristic discoloration of the bark tissues is variable; in cases where the mycelium is only present in small quantity, the colour is very little different from that of the heathly bark, and in many cases, it is impossible for the eye to detect it. When the mycelium exists to any extent, a neutral tint is produced, and this is gradually intensified until, when the fungus has completely permeated the bark cells, the discoloration is most marked. If this infected area is closely observed in the course of time—and as I will shortly point out this time, varies considerably,—a number of whitish pustules will be seen on the surface of the cortex (Fig 1). The pustules are of just about the size of a pin's head, and increase to the size, sometimes, of a large pea; and, as a rule, they become pink later. These are the reproductive bodies of the fungus, and consist of a mass of spores (spores may be, for all practicable purposes, considered as the seeds of the fungus). It is by means of these spores, that the canker spreads from tree to tree. If we examine the tissues of the bark at a diseased spot microscopically, we shall find all the cells, from the cortex to the old wood permeated by their strands (Fig. 2)—almost colourless. The mycelium of the fungus and these are more massed at the points where they have forced their way through the cortex and produced their spore-pustules. The cortex of parts of a tree some eight or ten years old, is, as a rule, slightly cracked in places, and it is at these weaker parts that the spore masses are found protruding. As was mentioned above, these spore-pustules change from a dirty white to a pink colour. In the white stage—which is the first—the spores formed are extremely small, oval or egg-shaped, and formed in chains. In order to afford some notion of the size of these spores—at a rough calculation, about five million, one layer thick, would be required to cover the surface of a ten cent piece. Later on, from behind, second and differently-shaped, spores are formed, which are much larger—about six times the size of the primary spores—and are in the form of a crescent or bent cylinder and septate, *i.e.*, having a number of transverse partitions, usually eight.

If one of the small spores be placed in a suitable medium and kept moist, in the course of from 12 to 15 hours, they begin to germinate, pushing out a tube, which, as it grows, branches frequently, often coalescing with neighbouring branches, and in about 50 hours, producing spores like those from which they originated. Unfortunately, though this method of cultivating and observing the growth of spores is of the greatest interest, it is of less value than observing the growth of the fungus in the living cacao stem (and this is unfortunately impossible) because the rapidity and vigour of growth varies, according to the media employed. Thus, in a water or gelatine culture the spore, in germinating, does not behave as it does in the tissue of the cacao bark, where, of course, the resistance to growth is greater and the nutritive material different.

The method of growth of the secondary spores is very similar, except that a number of tubes are sent out from the spore, even sometimes one from each of the eight chambers into which the spores are divided. As a rule, the growth is not nearly so rapid.

Both these forms of spores are technically called "gonidia." The fungus, however, in addition to producing the simple gonidia spores, has a third and more complex fruit, which will be described later, called "sporangia."

In order to trace the further progress of the disease, if we leave the diseased spots still longer and allow them to spread until they either completely cover the bark or else go completely round the tree, and thus "ring" it and prevent any nutrition passing up to the branches above; then the tree dies—the time taken to kill the tree depends on a number of very varying circumstances and conditions, viz.:—the quantity of mycelium in the affected tissues; the vigour of the remaining healthy portions of the tree; the amount of moisture in the soil capable of being used by the roots; and the damage being done to the tree by other enemies, borers, &c. Clearly, therefore, it is not possible to give any exact data as to the time taken by the fungus to kill the tree, and, in my inoculation experiments (described in my interim report) there was the greatest diversity in the rate of growth even in trees apparently equally vigorous and under exactly similar conditions. In one case, after the tree was inoculated and a diseased spot produced, the area of the diseased portion increased only just a noticeable distance (about $\frac{1}{4}$ inch) every day; in the next tree experimented on, the spot increased its area very rapidly, and in about ten days, covered a space more than two feet long, and almost round the tree. In these cases, however, the difference in time is explicable in other ways also. In the one case, a great many of the spores

used in inoculating the part, may have germinated, and in the other few and, also the condition of the cells, more or less damaged by the cut made for the inoculation, and the quantity of sap they possessed, would naturally influence the growth of the mycelium.

When the tree is being killed by the canker fungus, it exhibits all the symptoms of death from want of nutrition, *i.e.*, the browning of the leaves and fruit, and the gradual drying-up of the bark of branch and stem. Before the bark has quite dried, the third and more perfect reproductive bodies are produced. They are easily recognised with the naked eye, as small crimson spherical bodies, generally in clusters (Fig. 3). They are individually not so large as a pin's head, but a number together are easily detected by their size as well as their colour.

The best place to look for these is on the cortex of old trees and branches cut down because dead.

These spherical bodies are the coverings of the third form of spores, and contain a number of sack-like transparent bodies, which, in their turn, contain each eight spores. These spores are larger than the primary gonidia spores and are uniseptate, *i.e.*, having one division (Fig. 4).

A very large and important group of fungi are characterised by the possession of these spores—asco spores—so called from their being enclosed in asci or the sack-like bodies described above, and, in many of the fungi in the asci group—the formation of gonidia spores precedes the production of the spherical sporangia enclosing the asci.

We have here the complete history of the canker fungus, which passes all its life on the cacao and produces all its three forms of spores there. It only grows on the back of the stem and branches, and not in the root, often spreading down below the surface of the ground to the root, but never invading it and never passing into the leaves.

With regard to the relation of the two varieties of cacao grown in Ceylon, the Forastero with the white or green pod, and the Criollo, or Red, with the red fruit,—both experiments and observations point to the fact that the Forastero is much less attacked by the canker than the Criollo. In fact the Forastero seems more robust in resisting all the enemies of cacao. I have seen a fine Forastero tree towering many feet above its neighbours, all of which were Criollo, and were damaged by the wind. There can be no doubt that the Forastero can be brought to a higher state of cultivation here than the red or Criollo, and all supplies should be of the hardier variety.

With regard to climatic conditions affecting the canker, the matter is one on which, to a certain extent, a misunderstanding exists. There is a prevalent idea in the case of the cacao canker as well as in other specific diseases that an unhealthy, and not vigorous tree is more *liable* to the disease than one full of vigour—this is misleading. There is no proof whatever that such is the case, and it might almost be said that the evidence points more to the infection of healthy trees than unhealthy ones, but it must always be borne in mind that the healthy trees when attacked fight better against the disease, and have more chance to overcome it, whereas, in the case of weaker plants they succumb sooner. *No special pre-disposition of the tree is necessary for the attack of the fungus*, the only conditions needful are moisture and heat. The latter we have always in sufficience in this country and, therefore, it is the dampness as the condition which varies, and which is prejudicial to the tree when considering attacks of canker. The easiest way to understand these conditions is to remember that for all practical purposes the conditions necessary for the germination of a seed are the conditions necessary for the germination of the spores of fungi. In the case of the canker the spores may be blown upon a tree during a dry period, and will, after being exposed to dry air for some time (and of course much more quickly if in direct sunlight), lose their power of germination. If however these spores alight on the cortex of a tree, when the air is charged with moisture, and when the stem itself is damp, it is almost certain to penetrate and infect the tree. With regard to the entrance of the germinating tube of the spore into the bark tissues, there is here a rather difficult point to decide whether the young mycelium can force its way through hitherto unbroken cortex or whether it must find an opening caused by a natural crack an insect puncture, or a casual injury. My experience on this subject leads me to think that in the case of young trees or the young parts of old trees, the mycelium can penetrate but in the case of thicker cortex on old trees there must be some opening by which an entrance can be effected.

In this connection reference may be made to a belief wh current that the period of healthy life of the cacao tree is li to about 15 years. A visit to some of the older plantati Ceylon, twenty years and older, many of which are bearing more per tree than ever before, would dispel this idea, and seems to be nothing to contradict the belief that if the cacao properly treated and has room to grow it should yield good for twice twenty years, and probably longer. In many cases the borers are allowed to ravage the tree without hindranc life of the tree is short, and in most cases where deaths are s so early an age as that mentioned above, it is due to this or external causes.

The most important part of this report to the practical pl however, is the portion dealing with preventive and cu measures.

The conditions necessary for the growth and spread of fung been described above, and these conditions must, as far as po be kept away,—but there are other enemies to consider in gr good cacao, besides the canker *helopeltis*, is in many cases a serious evil, and experience has shown that in many cases whe shade is taken away, the result is such an increase in the num the *helopeltis* that the cacao is seriously damaged. Wind is als injurious to cacao in many places, and make it impossible to g without protecting shade trees. Much depends on the situatio both the enemies. There is cacao in Ceylon growing in the excellent vigour (and this in one of the hottest districts) wit vestige of shade, and where the *helopeltis* does not do much da there is no doubt that the cacao is much safer from danger of attacked by canker when grown absolutely in the open. Ho taking the *helopeltis* as an enemy that must be reckoned with important that the shade employed to keep away this pest s not be too dense, to prevent the sun getting through, and ke the air, and the stems of the trees dry. A light flickering sh in most cases enough to keep away *helopeltis* in great quantity such a shade at some distance above the cacao trees does no the undergrowth at all damp. For wind, of course, belts a most efficacious, and not numerous trees growing among the c

In some cases the cacao trees are placed so near together (I seen cacao 12—15 years old, six feet apart) with the branches lapping each other that, although the overhead shade may be the cacao itself is keeping the atmosphere around the stems and such conditions apart from the cramping effects on the tre most favorable to the increase of the canker fungus.

The preventive measures, therefore, are to keep the cacao conditions which do not favour the germination of the spores. regard to application of fungicides as preventive means, the b these are those having sulphate of copper (blue stone) as their Bordeaux mixture, &c. Sulphate of copper is the most pow fungicide which has comparatively little effect on the external ti of the plant, we know of. Experiments show that spores wil germinate in a solution of copper sulphate containing only one in 500,000. If a thin coating of this substance could be kept on and branch, no doubt this would, effectually prevent the germin of any of the spores on the trees, but the time when the s germinate is the time when there is continual rain, and during periods it is practically impossible to keep the copper sulphate trees—every shower washing it away. Though I am a firm be in the efficacy of copper sulphate as a preventive to fungi, y seems to me that in the case of cacao cultivation, it is not practi

Remedial measures are, in plant pathology, peculiarly ha prescribe, and my time has been mainly occupied since I have be acquainted with the nature of the disease, with this most impo question.

In all cases of canker of bark, whether fruit or timber tree remedy has for many years been surgical, viz., to cut ou diseased tissue—and there is no doubt that in the case of the canker, this is the safest and most effectual remedy. I have several experiments with different substances, applying them nally. In nearly all cases I had no expectation of success, but them, owing to the belief in them held by practical men. In n has there been any success, and it is more than improbable there should be. The mycelium of the fungus permeates all the of the diseased tissue and any substance applied which would ki mycelium of the fungus must necessarily kill the tissue well, and will most probably damage a larger area of bark th attacked by the fungus. The knife does exactly the same wor

n a more efficient manner, and even if a substance which could be trusted to destroy the parts affected were employed, it would be very much more expensive in Ceylon than the cost of labour. Two cases have come under my observation of estates where the canker appeared some two or three years ago, and the plantations have been kept practically free from canker by this method of cutting out, and there is no doubt that, if this had been carried out generally, that the loss by canker would have been inconsiderable.

With regard to the application of tar it is in most cases absolutely harmful, as it acts as a water-proof over the diseased parts, keeps them damp, and the growth of the fungus goes on beneath. It is also a mistake, as it conceals any bad work in cutting out when, for instance, no margin is left.

The above treatment, *viz.*, cutting out all the diseased tissue, and also a good margin of healthy tissue beyond, in order to take away the outlying strands of mycelium, which are not present in sufficient quantity to discolour the bark—has in no case I have seen failed, and I have seen many hundreds of trees so treated; but there are unfortunately many estates in which the trees have been so long diseased, and such a large area of the bark invaded by the mycelium of the fungus that it is impossible, without killing the tree, to entirely remove all the disclosed tissue. In such cases other treatment must be resorted to; but it should clearly be understood that complete excision is the only sure method of curing the tree

In cases where a large area on a tree is claret or neutral coloured, the treatment by shaving the cortex has been tried with varying success, in one estate it has been practised for some three years, with almost invariably successful results.

A sharp pruning knife is the best instrument, though a spoke-shave is very useful when the surface to be shaved is fairly even. All the discoloured part should be exposed, and in addition, a margin of one and-a-half to two inches should be also exposed round the discoloured part, leaving the claret or neutral portion in a frame of healthy bark. This is necessary, as has been already explained, because the mycelium spreads from the discoloured patch beyond, and, unless it is in a certain quantity, gives no clue to its presence by any abnormal colour or moisture in the bark. All the shavings should be strictly collected and *burnt*, as they contain, in nearly every case, on the outside the spores of the fungus.

When this shaving is properly done, the exposure to the air (more especially with very thin shade) dries up the diseased tissue, and in some cases the dry and dead tissue scales out and drops away; while the remainder of the bark, being relieved from its enemy, forms a healthy callus round the injury, and in the course of time, completely covers over the shaved part. This treatment has been tried on a good number of estates, and only succeeds in a proportion of cases. I should estimate about 50 per cent. is certainly not too high. The other 50 per cent., on examining the trees a week or ten days later, the mycelium, though greatly weakened in activity, is found to have spread gradually, and if this is again cut out, as a rule, the fungus is killed. In all cases where this second attempt, or, at any rate, the third has been made to kill the fungus by exposure and without success, the best plan is to cut down and burn the tree, leaving, of course, a stump as far as possible, for the production of "suckers."

The question of growing "suckers" in cacao is an extremely interesting one, apart from the question of the canker; but in regard to the canker, more important still. In my experiments, I inoculated the stems of 30 healthy trees, and 26 of these acquired the canker, but in the case of "suckers," out of ten "suckers" so treated, I only procured the disease in one instance. The infrequency of canker on the suckers, compared with stem and branches even in badly diseased estates, is most noteworthy; and this is a most important recommendation in support of the practice of leaving the suckers, and not as is the usual practice, cutting them out wherever they appear. The whole question is perhaps more for the experience of the planter to deal with, but my observation lead me to doubt the advisability of the hard-and-fast rule to remove suckers from the tree without regard to the respectative requirements of each plant; and in cases of estates where they were left, the health and cropping of the trees seem to me better. So that, when in addition this, we find that the suckers are less affected by the disease, it still further points to the desirability of at any rate trying the plan of allowing trees to produce suckers. One is told that suckers take a long time to produce fruit, but from observations tkken, we find that fruit is borne on suckers very little more than a year old. In all cases where a tree is cut down to a stump, it is well to put in a supply plant, so that, should the suckers not form or not produce a good tree, time will not be wasted.

To sum up the measures which experiments have shown to be of value:—

1*st*. In all cases of cankered trees, to excise all diseased tissue, being careful to cut out all round beyond the discolouration.

2*nd*. Burn all diseased parts so removed.

The treatment by shaving only to be resorted to when the entire removal of the diseased tissue would be likely to prove fatal to a large number of the trees.

The best time for examining the trees is just after the rainy season, when the stems of the trees are dry. It is very difficult to detect any signs of the canker on the cortex when the trees are wet during rains, and the fungus which begins during the damp weather has not had time to produce a noticeable patch. In all estates, there should be an inspection, and in places where the disease is unknown, it would be advisable that an intelligent cooly should be sent to an estate where the canker exists, in order to make himself familiar with its appearance; two or three days with the canker cutting coolies on any good estate, would enable an average coolie to readily recognise it, and he would also learn the most workmanlike methods of cutting out, without doing more damage to the tree than is necessary.

If any doubt is felt with regard to a dark spot on a tree, a slight scratch with a knife will reveal the bark below either healthy or discolored.

There is another advantage attached to this cutting out of cankered spots, which the planter will soon find out. The white borer originates, in the great proportion of cases, in the cankered places, the soft wet tissue there being more easily penetrated. On an estate, therefore, where cutting out the borers has had to be carried out pretty frequently, a great decrease will be found, when all the diseased patches are removed, and the same coolies who deal with the canker can easily add the cutting out of borers to their duties.

Since beginning to write this report I have had brought to my notice a canker on the thorny Bois tree—a tree extensively used for shade in cacao estates—(Erythrina umbrosa)—a canker which on examination, proved to be the cacao canker, and indeed experimentally proved by inducing the canker in cacao trees with inoculations of diseased tissue and spores from the Erythrina. There is no doubt—considering the infrequency of this disease on the Bois, even in estates where the majority of the cacao trees are cankered, that it has come from the cacao to the Erythrina, and not *vice versâ*, but it behoves planters to look to their shade trees, and to treat them surgically as well as their cacao trees whenever they notice any signs in them suspected to be canker.

Though in the first instance these investigations were directed to the canker disease and its effects another disease attracted my notice, and is of great, importance to cacao growers, as it affects the pods, and consequently damages the crop, in some cases to a very large extent.

This pod disease is very easily distinguished from the other enemies affecting the pods, viz., Helopeltis borers and squirrels, &c. It causes a browning of the husk, which, almost invariably, begins either at the stalk, or point of the pod, and not in the middle and is marked by a definite line. (Fig. 5). On cutting the pod open, it is found not to be superficial like the brown, or black marks caused by Helopeltis, but to spread through the entire thickness of the husk, and if it has been going on for a few days affecting and discolouring the seeds also. This disease is caused by the presence of the mycelium of a fungus in the soft tissues of the fruit, the fungus belongs to the same group as the Potato disease.

It produces its fruits of reproductive bodies in the furrows of the pod, where they can be seen as a white mould. On examination microscopically, they will be found to consist of spherical or egg-shaped bodies containing round spores.

Pods attacked by this fungus are completely destroyed in about ten days. An important fact to remember is, that once the pod is attacked by his fungus, the seeds never increase in size, all the nutrition being taken up by the quick-growing mycelium. It is, therefore, of no use to keep any diseased pod on a tree, as no ripening or enlargement of the seed takes place—only increase and spread of the fungus. Very strict measures should be taken on estates where this disease exists, and all pods effected should be taken off directly any sign of the disease is noticed, and *burnt*. By this means the number of spores is reduced, and if carried out for some time the evil should be lessened to a great extent. Of course, as in

the canker, the wet season is the time when this fungus flourishes, in a dry season it is not often met with.

Before concluding this report, I must refer to the great assistance I have received in carrying out these investigations, without which it would have been almost impossible to have gained any of the knowledge which is recorded here. The information afforded by planters has been most valuable. Of the greatest use are records which are usually kept—the rainfall; the crops each month; the deaths due to disease—ravages of insect enemies, &c., &c., all of which led to an increased knowledge in helping cacao to a healthy life. Agriculturists at home might well take a leaf out of the Ceylon planter's book, in regard to these matters.

My thanks are especially due to those planters whose estates I visited, and who, in all cases, added to the pleasure of my visits by their hospitality and kindness.

These investigations have, at times, presented to me disappointing difficulties, but have always been of the greatest interest to me, and with so much still to learn of the cultivation of cacao, and the battle with its various enemies, fungi, insects, &c., I leave my observations and experiments with regret; but still with the hope that Ceylon cacao planters will continue to gain knowledge as to their cultivation, so that they may grow cacao to greater perfection and with increased profit.

J. B. Carruthers.

DISTRICT ASSOCIATIONS.

WYNAAD.

Proceedings of a General Meeting held at Meppadi on 5th October, 1898. Present:—J. W. Hockin (*Chairman*), H. Atzenwiler, A. C. Glenie, R. Lamb, W. R. M. MacKenzie, W. MacKinlay, B. Malcolm, S. Robinson, H. Waddington, E. deFonblanque, *Honorary Secretary*.

Proceedings of last Meeting.—The Proceedings of the previous meeting were taken as read.

Pudu Padi Hotel.—Read letter from Mr. T. J. Ferguson.

Proposed by the Chair, that the balance in hand, Rs.358-5-2, which Mr. Ferguson offers to hand over, be accepted and placed in the hands of the W. P. A. Committee.

Carried.

The Secretary was requested to write to Mr. Ferguson to ask whether the mortgage on Pudu Padi Hotel belongs to the Trust Fund.

Proposed by Mr. H. Waddington, seconded by Mr. E. deFonblanque:—

That, in the event of the mortgage on Pudu Padi Hotel belonging to the Trust Fund, Mr. T. J. Ferguson be requested to transfer it to Messrs. J. W. Hockin and R. Lamb on behalf of the Association.

Carried.

Read letter from C. Shangram.

Recorded.

Roads.—Read letter from the Collector of Malabar on the subject of proposed road from Vellera Mulla to Ernaud Taluq.

Resolved that the subject is outside the province of this Association, but that those persons interested in it would subscribe towards the upkeep of the road after it is finished.

Plague.—Read letter from the Collector of Malabar stating that it is not at present considered necessary to erect a plague camp at Meppadi.

Recorded.

Sultan's Battery Post Office.—Read letter from the Post-master-General. *Recorded.*

"Planting Opinion."—Read letter from the Secretary, U.P.A.S.I.

Proposed by the Chair that the printing of the Ass tion shall in future be given to *Planting Opinion* at same rates as those obtaining at present; and that Association subscribe to the paper.

Proposed by Mr. H. Waddington, seconded by H. Atzenwiler:—

That the Manager, *Planting Opinion*, in future out copies of Proceedings of Members of this Associa as suggested by him.

Amendment by Mr. W. MacKinlay, seconded by E. deFonblanque:—

That the U.P.A. Proceedings be sent to the Mana *Planting Opinion*, and that he be requested to copies to the leading papers, and that no copies be sen the Members.

The amendment was put to the Meeting and lost, the Resolution was carried.

Coffee Robbery.—Proposed by Mr. H. Atzenw seconded by Mr. H. Waddington:—

That the Hony. Secretary be asked to write and req the present Superintendent of Police to take the same s as were taken by Mr. Fawcett to stop Coffee robbery.

Carrie

Small Local Change.—Proposed by Mr. B. Malc seconded by Mr. H. Atzenwiler:—

That the attention of the Collector of Malabar be dr to the fact that no two-anna pieces have been issued regul with the change in payment of money orders at the Office for the past two months.

Carrie

A vote of thanks to the Chair closed the Proceedings

E. deFONBLANQUE,

Hony. Secy., Wynaad Planters' Associat

HELPLESS ON THE SHOALS.

A great steamship, feeling her way in a fog, ran upon a low r bank and stuck fast, about twenty miles from her port. She on board a valuable cargo and nearly three hundred passeng most of whom were almost within sight of their homes. The t came and tried vainly to pull her into deep water. The offi were as able navigators as there had ever been. But she helpless, and it was dead low water. Only one thing could done—to wait. A few hours later the Captain said to his passeng "*The tide is rising*; we shall be off presently." Sixty min more and the ship floated. It was now noon. At two o'cl sharp the impatient voyagers stepped ashore. They might h been delayed longer save for the one fact which the captain announced in four words.

Perhaps this simple and not uncommon incident may contai lesson for you and me. Suppose we draw a little comparison a see. The man who learns nothing from things at his elbow only waste his time going to college.

Mr. William Jordon is grocer and postmaster at Bright Walth Wantage, Berks, where everybody knows him and believes in h On December 7th, 1893, he wrote a letter to a friend, and by cons of both parties we print a part of it.

"In the autumn of 1890," he says, "I had an attack of influe The effects of it lingered with me. I had no heart for anyth I was tired, languid, and weary. My appetite fell away, and w I did eat gave me a sense of tightness and fulness at the chest; bowels were very costive and I suffered much from sick headac Sharp pains often caught me between the shoulders, and breathing was very bad. I kept on with my work, but, on acco of my weakness, the task was doubly hard. For about four mon I was like this, when one day the thought came to me to try

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TATE TOOLS—		Rs.	A.	P.
Round Eye Felling Axes (steel), 4 lbs. weight	per doz. ...	20	4	0
Do. do. do. 2½ „ „	„ ...	15	0	0
Pick Axes, 6½ lbs. (well steeled)	„ ...	16	8	0
Bill Hooks, (Barcutties) 12″ blade, bright steel	„ ...	18	0	0
Do. Kentish, with back, steel, 2¼ lbs. wt.	„ ...	16	0	0
Bushel Measures (Galvanized), Imperial Stnd. ...each	...	15	0	0
Buckets (Galvanized), various sizes ... from	per doz. ...	16	8	0
Watering Cans, (Galvanized) "Nonsuch," 2 gals.	each...	4	0	0
Do. do. do. 2½ „	...	4	8	0
Steel Digging Forks. *Steel strapped all along handle.*				
4 & 3 pronged	per doz. Rs. 39-0-0 &	33	0	0
Grass Knives, socket handle, steel ...	per doz. ...	12	12	0
Hammers, 6, 7, & 8 lbs.	per lb. ...	0	6	0
Handles, Pickaxe, 3 ft. long (English Ash) ...	each ...	0	12	0
Do. 30″ long 3¾″ circ. (do) ...	„ ...	0	6	0
Do. 16″ „ 3″ „ (do) ...	„ ...	0	4	0
Do. Digging Fork	„ ...	0	14	0
Lining Ropes, abt. 250 feet	„ ...	8	12	0
Mamooties, Steel 10″x 8″ or 9″x 7″ abt. 4 lbs. wt.	per doz. ...	12	12	0
Do. Iron 10½ x 8½ or 9½ x 8 abt. 4 lbs. wt.	„ ...	7	8	0
Quintanies, Steel 15″ × 6,″ 5½ lbs. weight ...	„ ...	18	0	0
Do. 9½″ x 5,″ 3¼ „ „ ...	„ ...	14	4	0
Manure Pans, (Galvd.) 7″ deep x 18″ top x 10″ bottom	„ ...	23	4	0
Pitting Bars (Alavangoes), well-steeled points, 3″ spade end, 45″ long, 9 lbs. wt.	„ ...	16	8	0
Pruning Knives, English make, best steel, 4″ blade	„ ...	9	0	0
Do. Saws, do. do. 14″	„ ...	18	0	0
Seamless Bags (for coffee transport to coast) 42″ x 20″	„ ...	9	12	0
Shovels, round nose, T handle	„ ...	12	12	0
Tea Transplanting Spades, steel, sharp edge ...	each ...	2	8	0
Tea Sieves, brass No. 6, 8, 9, 10, 12 mesh	„ ...	6	0	0
Do. do. bottoms do.	„ ...	3	8	0

A REQUISITES—FOR PACKING.

HESTS—MADE TO ORDER. *Deld. at Mettapollium, Palghat, Calicut.*				
Full Chests 24 x 19 x 19 (outside) ½ in. planks	each ...	1	1	0
Half do 16 x 16 x 16 („)	do „ ...	0	13	3
Quarter do 14 x 12 x 10 („) ⅜	do „ ...	0	9	3

Any other dimensions at proportionate prices.

EAD—BEST INCORRODIBLE. *Any other sizes obtained to order.*				
127 sheets 37″ x 22″	per case of 2 cwt.	32	0	0
or 218 „ 25″ x 19″	„ ...	32	0	0
„ { 40 „ 84″ x 22″ for sides; 80 „ 21″ x 16″ „ tops and bottoms }	„ ...	30	0	0
„ { 72 „ 65″ x 19″ „ sides; 144 „ 14″ x 14″ „ tops and bottoms }	„ ...	30	0	0
older (Sticks)	per case of 1 cwt. Rs. 50, or per lb. ...	0	8	0
oldering Fluid	per bottle ...	2	0	0
Hoop Steel ½″ (abt. 3,000 feet to the cwt.)...	per cwt. ...	15	0	0

COFFEE PULPERS—*To order only. One month required for delivery.*

	For Arabica.	For Liberian.	Rs.	A.	P
Agents for:—MESSRS. WALKER SONS & CO., LD.					
Price list and illustrated catalogue sent on application.					
Copper Punched Cylinder cover 4′ x 2′ ...		each ...	25	0	0
Do. Disc cover		„ ...	9	0	0
Do. do. for Liberian ...		„ ...	12	8	0

COIR MATTING—In rolls of 60 feet long x 3 feet wide.

Estate, Double, (coffee drying, etc.) Nos. 1 and 2, Rs. 2-8 &	2	4	0
Ordinary Bungalow Twill	7	0	0
Fine Machine-made Yarn	12	8	0
Superior Yarn	15	0	0

Coloured stripes to order. Samples sent on application.

IRON—GALVANIZED.

Continuous Iron. For roofing, etc. In rolls of 100 ft. x 2 ft. 28 G. (per ft., 7 as.)	per roll ...			
Corrugated Iron sheets 24 G. 2 ft. wide (English) Lengths 5, 6, 7, 8, 9, 10 ft. Approx. weight 14, 16, 19, 22, 24, 27 lbs.	per cwt....	10	0	0
Iron Ridging, 6 ft. x 6 inch lap. ...	per length ...	1	8	0
Bolts and Nuts, ¼″ x ¾″	per gross ...	1	14	0
Rivets (*abt. 64 to the lb.*)	per lb. ...	0	4	6
Washers, Iron (*abt. 70 to the lb.*)	„ ...	0	4	6
Do. Lead (*abt. 50 to the lb.*)	„ ...	0	6	0
Screws 2½ in. (*abt. 28 to the lb.*)	„ ...	0	7	0
Lead headed nails 2½ in. (*abt. 20 to the lb.*)	„ ...	0	6	0

NAILS—

Cut Rose Nails 1 in. (*abt. 500 to the lb.*) ...	per lb. ...	0	3	0
Do. 2½ in. („ 90 „) ...	„ ...	0	2	0

Wire Nails, French.

℔ 1 cwt. keg	1″	1½″	2″	2½″	3″	4″
	Rs. 13/12	11/8	11/	10/8	10/	9/8
℔ pound annas	2¾	2½	2¼	2¼	2	1¾
Nails ℔ lb. (*abt.*)	400	200	160	100	80	35

Triangular Barbed Wire Nails.

℔ 1 cwt. keg	1″	1½″	2″	2½″	3″	4″
	Rs. 14/	12/	11/	10/8	10/	9/8
℔ pound annas	2¾	2½	2¼	2¼	2	1¾
Nails ℔ lb. (*abt.*)	500	290	160	110	75	40

ASPHALTE	per ton ...	69	0	0
PORTLAND CEMENT—John Bazely White and Bros. "Whites" Best	℔ barrel of abt. 375 lbs. net ...	11	12	0
Sole Agents for S. Canara, Coorg, Malabar, Coimbatore, Travancore.				
COAL TAR, Best	℔ barrel of abt. 4 cwts. gross ...	20	0	0
WINDOW GLASS—per case of 100 sq. ft. (all sound) 12×10, 14×12, 16×14, 18×14, 20×16, 22×18, 24×20, 28×24, 36×24 and 36×30.	...	15	0	0

PRINTING—All kinds of Estate Weekly and Monthly Report and Account Forms, executed at our KARAPARUMBA PRESS.

MANURES.

ish Guano. Steamed Bone Meal. Poonacs:—Castor, Mowra, Hoongay. **Saltpetre, Crude and Refined** (Nitrate of Potash.) **rate of Soda. Sulphate of Ammonia. Sulphate of Potash. Muriate of Potash. Superphosphates. Phosphate Powder. Kainits Salts.**

Mixtures can be made in any proportion without extra charge. **Packing** can be done to suit transport by bullocks, etc.

Prices will be furnished on application for delivery either at our Karaparumba Works, Calicut, the Calicut Railway Station, Palghat, Mettapollium, m, or at our godowns in Cochin, Tellicherry, Mangalore and other places.

Quotations will be obtained and orders booked for any Manures not kept in stock. F.r.m.

medicine that so many of my customers bought of me and spoke so highly of. I carried out this idea, and after I had taken one bottle of it I noticed this first of all—*My appetite was better.* I could eat; I relished my food; I got stronger. I took another bottle, and was as well as ever. That is three years ago, and I haven't had a touch of illness since. (Signed) William Jordon."

One more letter—short and right straight to the point. Mr. William R. Saunders writes it. He is a newsagent, and lives at Old Town, Wotton-under-Edge, Gloucestershire. His letter is dated November 7th, 1893, just one month to a day earlier than Mr. Jordon's. That merely happens so, the two gentlemen having no knowledge of each other.

"In the spring of 1891," says Mr. Saunders, "I found myself out of sorts all unexpectedly. I couldn't fancy what had come over me. I was low, weak, and tired. I could eat hardly anything, and what I did eat gave me so much pain and distress that I came to dread sitting down to a meal. There was pains in my chest, sides, and back, between the shoulder blades. Then I got so weak that my work was a sort of drag on my hands; and even when walking I was so short of breath I had to stop and rest here and there. I took medicines the doctor gave me, and pills, &c., that my friends recommended; but it was no use, they didn't help me. And all the time, month after month, I was getting weaker and weaker. At last I got a bottle of medicine from Bristol that was right. That one bottle had this effect at first. *My appetite came back,* and when I got through with the second bottle I was completely cured. (Signed) William R. Saunders."

Now for the lesson. You see what it is of course, but let' it in words. When the ship was fast on the shoal only one helped her—*the rising tide.*

When these two men were fast on the shoal of illness onl thing helped them—*the rising appetite.* With eating and dig came strength and health, for the trouble was that uni destroyer and deceiver, indigestion and dyspepsia.

The *tide* rose to the pull of the moon. The languid *app* roused by medicine finally resorted to by both our correspo —Mother Seigel's Curative Syrup.

MARKET REPORT.

COFFEE.

Messrs. R. J. Rouse & Co's Weekly Coffee Report (*September* 23 says :—The supplies brought forward in Public Sale this week met demand and the market generally was rather easier.

About 600 bags East India were catalogued and mostly sold at irregular prices.

Central American kinds met poor competition and a large pro had to be bought in, the rest selling at 2/- to 3/- decline for comm mixed descriptions, whilst a few bold colory lots realised steady ra

Futures advanced 9d to 1/- during the week on a report that the r at Santos would be very small for the next few days owing to the r not working on account of the damage done by rain, but most advance has since been lost and the market closes quiet 3d to 6d than last week.

FRESH STORES.

A large Consignment has just been unpacked consisting of Oilmansto Tinned Provisions, Luncheon Delicacies, Jams, Crystallized Fruits; a good assortm of Cadbury's Chocolate Drops, Gruyer Cheese, &c., &c.

Copies of our new Revised Price List are now available.

Great care is taken in the selection of goods for Out-station Clie

ROYAL EMPORIUM,

BANGALORE

[w.—3-9-98—t.f.o.]

Agents for LEA & PERRINS' WORCESTERSHIRE SAUCE.

CROSSE & BLACKWELL'S, LTD.

By Special Warrant Purveyors to The Queen AND Empress of India.

CELEBRATED OILMAN'S STORES.

[w. 1-10-98—t.f.o.]

Messrs. Wm. Jas. and Hy. Thompson's Report of the Colonial Markets for the eek ending September 21st, 1898, says:—Bank rate 2½°/₀. Bombay change closes at 1s 3 15/16d. Brazil Exchange 7 23/32d. Rupee paper 3½ °/₀ ¾. Silver 28 5/16d per oz.

A quiet tone has prevailed throughout the past week, and although ices have shewn some irregularity, no alteration can be reported. Fine owths continue to meet with good competition. Brazil markets ıtureless.

Futures have fluctuated, closing firmer at a decline of 3d to 9d per cwt., :—Good average Santos in Havre, December delivery, fcs. 38.50, in ımburg pf. 32, and No. 7 low ordinary Rio in New York $5.85.

Daily receipts averaged 14,000 bags in Rio, and 32,500 bags in Santos.

To-day's London official quotations are :—

	Sept.	Oct.	Dec.	Mar., '99.	May.	July.	Sept.
Santos ...	30/9	30/9	31/-	31/6	32/3	32/6	33/-

We quote :—

ylon, mid. to good mid.	101/	@108/	
Do. small to low mid.	79/	„ 99/	
ıst India, mid. to good mid...	70/	„ 92/	
Do. small to low mid.	58/	„ 72/	
ıatemala, mid. to fine...	66/	„ 98/	
Do. good ord. to low mid...	50/	„ 64/	
lvador, good ord. foxy greenish...	38/	„ 42/	
Costa Rica, mid. to fine...	69/	@104/	
Do. ord. to low middling.	37/	„ 65/	
Jamaica, good to fine ord.	32/	„ 48/	
Do. greenish to fine colory...	65/	„ 120/	
African ...	26/	„ 29/	
Columbian, ordinary ...	36/	„ 43/	
Do. good ord. to low mid...	42/	„ 63/	
Do. mid. to fine...	64/	„ 98/	

Receipts in Brazil to 21st September, compare as follows with previous ars:—

	1898-99. Bags.	1897-98. Bags.	1896-97. Bags.
Rio	919,000	1,300,000	973,000
Santos	1,881,000	2,286,000	1,623,000
	2,780,000	3,586,000	2,596,000

Prices realized at auction for the principal Marks of East India :—

NEILGHERRY.

	A	B	C	PB	T
Glenburnie ...	82/6 bid	no bid	47/-	89/-	36/6
Merryland ...	86/-	67/-	49/-	78/-	40/6
Colacumbie ...	91/-	66/6	49/6	100/-	38/6
Bear Hill ...	91/-	67/-	49/-	91/-	37/-
AGN Hallacarry Nilgiris	no bid	no bid	49/-	97/6	40/-
CA Water Fall Nilgiris	88/-	64/-	48/-	85/6	40/-
Glencairnie Nilgiris	93/6 (Cases)	68/-	47/-	97/-	39/6

Landed last week ... 584 *tons. Deliveries* ... 933 *tons. Stock*...19,636 *tons.*
Do. last year ... 560 „ „ ... 523 „ „ ...12,096 „

London advices of 23rd ultimo state :—A generally dull tone has prelled in this market and the supplies at auction, which as a rule esented little attraction to the trade, were only partly disposed of. ıst India did not realise valuations. Costa Rica sold very slowly, even e fine home trade qualities for which low bids were generally made, sulting in the withdrawal of large quantities, and mixed grades were cidedly cheaper. Colombian and other Central American brought about te values for desirable lots, but easier prices for the ordinary descripıns. Futures opened flatly, but for a day or two there was a stronger eling, and prices advanced 6d to 1s per cwt., owing to a land-slip which likely to delay Santos shipments; at the close, however, the tone has ain become flat, and the improvement in value has not been maintained.

London	...Santos	...December delivery ...	31s. 0d.
New York	...No. 7 Rio ...	„ „ ...	5.80 cents.
Hamburg	...Santos ...	„ „ ...	32¼ pf.
Havre	...Santos ...	„ „ ...	38¼ francs.
Holland	...Good ordinary Java ...	...	35½ cents.

Imports Deliveries and Stock of Coffee in London are as follows :—

	Stock. 1898.	Stock. 1897.	Imports. 1898.	Imports. 1897.
West India ... tons	524	369	1,632	811
Ceylon ... „	151	198	306	470
East India ... „	1,960	1,962	5,590	5,107
Mocha ... „	538	485	690	517
Brazil ... „	3,679	2,297	2,979	1,912
Other Foreign ... „	12,442	6,503	26,901	20,726
Total ... „	19,294	11,814	38,098	29,543

	Home Consumption. 1898.	Home Consumption. 1897.	Export. 1898.	Export. 1897.
West India ... tons	268	261	1,176	529
Ceylon ... „	110	132	154	264
East India ... „	1,923	1,747	2,812	2,209
Mocha ... „	524	393	125	167
Brazil ... „	713	903	1,560	1,947
Other Foreign ... „	6,781	6,904	12,349	10,414
Total ... „	10,319	10,340	18,176	15,530

The preceding figures exhibit—

In the imports an increase this year of	8,555 tons.
Home consumption a decrease of	21 „
Export an increase of ...	2,646 „
Stock an increase of ...	7,480 „

Auctions this week have passed off as follows:—

Ceylon.—*Plantation.*—1 tierce 10 barrels sold, smalls 64s, brownish and low middling 82s to 100s.

East India.—31 cases 576 bags partly sold as follows:—*Neilgherry*, triage 36s. to 40s 6d, smalls 43s to 49s 6d, low middling to middling dull 64s to 68s, bold 86s to 93s 6d, pea-berry 78s to 100s: *Wynaad*, triage 34s 6d smalls 48s.

Johore.—*Liberian.*—30 bags bought in.

Jamaica.—8 barrels 4 bags sold, triage and low 19s to 24s, good ordinary 35s.

Costa Rica.—Of 2,574 bags brought forward 1,300 bags sold small pale 34s to 36s, pea-berry 54s 6d to 78s 6d; London-cleaned, dull small mixed black 29s to 32s, fine ordinary dull mixed black 48s to 49s, low middling dull 75s, good bulb 86s 6d to 92s.

Guatemala.—Of 1,547 bags offered only 700 bags sold, fine fine ordinary pale grenish 55s, low middling 59s 6d to 61s, middling 65s, pea-berry 67s to 67s 6d; London-cleaned, mixed small 32s to 43s 6d, soft greenish 61s to 62s 6d, boldish 71s, pea-berry 74s to 93s 6d.

Salvador.—Of 816 bags catalogued 420 bags sold, dull foxy pale 38s to 40s 6d, pea-berry 58s.

Mexican.—56 bags London-cleaned, bought in at 52s.

Colombian.—Of 1,977 bags offered only about 1,000 bags sold, smalls 30s 6d, dull pale 40s 6d to 43s, good ordinary pale 44s to 45s, fine ordinary 51s low middling 57s, pea-berry 56s 6d to 68s 6d; London-cleaned, smalls 25s to 42s 6d, damaged and dull soft greenish mixed red and black 51s to 59s, middling greenish colory 68s to 72s, good middling 75s 6d to 79s, bold 83s to 86s, good bold 92s to 94s 6d, pea-berry 64s to 92s.

Guayaquil.—47 bags bought in.

Brazil.—Of 1,409 bags washed Santos on landed terms about 400 bags sold, small and rather small dull greenish 30s 6d to 33s 6d, colory 43s.

To-day's auctions offered 10 casks 4 barrels Plantation Ceylon, 47 bags Nyassaland, 708 bags New Granada, 580 bags Columbian, 195 bags Vera Paz, 2,018 bags Costa Rica, 1,836 bags Guatemala, 248 bags Salvador, 13 bags Nicaragua, 144 bags Mexican, 372 bags Venezuelan, and 254 bags Santos. The sales went off with dull demand and pri0es were frequently in buyers' favor.

To-day's Havre and Hamburg Coffee Terminal Quotations

(*Communicated by Mr. Edward Nauen.*)

	Havre. 10.15 a.m.	Havre. 12.15 p.m.	Havre. 3.30 p.m.	Hamburg. 10.30 a.m.	Hamburg. 2.30 p.m.
Sept., 1898	38¼	38¼	38¼	32	32
Dec.....	38¼	38¼	38¼	32	31¾
March 1899.....	38¾	38¾	38½	32½	32¼
May.....	39¼	39¼	39	32¾	32½
	Quiet. Buyers.	Quiet. Value.	Steady. Value.	Steady. Value.	Quiet. Buyers.

TEA.

From London advices of 23rd September we learn :—

China.—Congous still continue devoid of any particular interest, demand showing no signs of improving. Green teas at auction have sold cheaper for new season's, the quality of which does not increase in popularity; old season's, on the other hand, exhibit some increase in price.

At public sale during the week 5,165 packages have been offered and partly sold :—

Indian.—A slightly larger quantity was brought forward comprising 39,200 packages, against 38,800 packages in the preceding week and 47,300 packages at this time in 1897.

There was fair competition for nearly all descriptions, values being generally maintained. Quality from many of the Assam gardens shows a falling off compared with that of previous invoices, but Darjeeling was represented by some choice shipments which met with some strong bidding, regular buyers of this class being very anxious to secure them.

Most of the Dooars continue to be useful. Cachars and Sylhets, however, on the whole remain poor in cup.

For 30,600 packages on Estate Account 8⅞d per lb. was obtained *versus* 8¾d per lb. for 35,500 packages and 10¼d per lb. for 27,200 packages in the two former seasons.

CEYLON.—Public auctions included 21,900 packages, whereas on the 13th inst. 15,700 packages were offered, and 19,700 packages a year ago.

The improved flavour observable in many of the Teas coming to hand was appreciated by the trade, and in consequence the sales passed with a firmer tone. Orders from the Continent were more plentiful, and though they could not always be executed gave support to the market. Common to fair Pekoe Souchongs and Pekoes were in request and scarcely obtainable on last week's terms. Medium to fine Pekoes and Orange Pekoes in most instances were decidedly dearer. Coloury Broken Pekoes and any lines with attractive infusions commanded considerably higher quotations, the following being some of the most noticeable for Broken Orange Pekoes, viz.:—Talawakelle, 1s 7½d; Dimbula, 1s 7d; Ingestre, 1s 6½d; Wootton, 1s 6¼d; Hauteville, 1s 5¼d and 1s 4½d; St. Clair, 1s 5d; Campion and Ythanside, 1s 4¾d; Holmwood and Hope, 1s 4d per lb.

The average is 8¼d per lb. On the 15th instant it was fully 8¼d per lb. and also on the 22nd September, 1897.

Java.—Rather over 1,300 packages of direct import were submitted to buyers, which met with good competition and brought prior to hardening rates. No further catalogues are at present issued.

Deliveries.

The clearances of all Tea (on which duty has been paid) from the London warehouses, as per official returns, were:—

From 1st to 20th Sept., 1898.....11,005,369 lb.
„ „ 1897.....11,665,136 „

During the week the following have been printed for sale by public auction:—

	Sold. Pkgs.	Withdrawn. Pkgs.	Total offered. Pkgs.
India	35,545	3,687	39,232
Ceylon	20,904	973	21,877
Java	1,249	98	1,347
Total	57,698	4,758	62,456

Also 252 packages from second hands.

Messrs. Gow, Wilson and Stanton's Indian, Ceylon, and Java Tea Report, dated September 16th, 1898, says:—

QUANTITY BROUGHT TO AUCTION IN LONDON
FROM 1ST JUNE TO DATE.

	Indian.	Ceylon.	Java.
1898-1899.	295,662 pkgs.	383,842 pkgs.	14,135 pkgs.
1897-1898.	290,475 „	427,417 „	14,036 „

39,496 pkgs. Indian
16,260 „ Ceylon
898 „ Java.
} Total 56,654 packages were offered in public auction this week.

Imports, duty payments and exports from the commencement of the season, as given by the Customs figures, are shown below. There is a marked increase in the export of Indian and Ceylon Tea.

Indian. This was the heaviest auction so far held this season. Good liquoring Teas continued to attract most attention and sold without alteration, but quotations were rather lower where invoices showed a falling off in quality. Although some very fine Teas from Assam and Darjeeling have lately been sold, musters indicate some falling off in quality. The following averages may be mentioned:—"Amal T Co. Dooteriah," 2/1½; "Poobong," 2/2; "Selimbong," 1/10¾.

Total Tea sold on Garden account 1st June to date 1898, 197,548 pkgs., av. 9d. 1897, 198,136 pkgs., av. 9·18d.

		1898.	1897.	1896.	1895.
DUST.	(Fair ordinary, dark liquor) ...	3½d	3½d	4¾d	4½d
FANNINGS.	(Red to brown, strong rough liquor) ...	4d	4d	5¼d	5d
BROKEN TEA.	(Brownish to blackish, strong liquor) ...	6d	6d	7¼d	6d
PEK. SOUG.	(Blackish greyish, useful liquor).	6½d	6¾d	7¾d	7d
PEKOE.	(Greyish to blackish, some tip, useful liquor) ...	7½d	8¼d	9¾d	8d
PEK. SOUG.	(Blackish greyish, inferior liquor).	5d	4¾d	5¼d	6d
PEKOE.	(Blackish greyish, some tip, inferior liquor) ...	5½d	5½d	6d	6½d

Ceylon. An unusually small auction contributed to strengthen the market, while several Teas of an attractive character induced spirited competition, quotations advancing for better liquoring sorts, while Teas for price were frequently dearer. An official wire reduces the original estimate of this year's crop from 126 million lbs. to 119 million lbs. Direct shipments to foreign countries are about 4 millions ahead of last year. Averages:—"Carolina Tea Co. Goatfell," 1/2¾; "Henfold," "Nayabedde," 1/-. Average for week 8·28*d.*, against 7¾*d.* same period

Ceylon Tea sold on Garden Account 1st January to date 1898, 8 pkgs., av. 7·62*d.* 1897, 825,297 pkgs., av. 7·60*d.*

		1898.	1897.	1896.
PEKOE SOUG.	(Ordinary leaf; fair liquor) ...	6½d	6¼d	6¾d
PEKOE.	(Ordinary leaf; little twist; fair liquor) ...	7¾d	7¼d	8¼d
PEKOE SOUG.	(Rather bold leaf; indifferent liquor) ...	5¼d	5d	5¾d
PEKOE.	(Somewhat bold leaf; indifferent liquor) ...	5¾d	5¾d	6¾d

Java. The small auction passed with good spirit at firm prices.

Messrs. Gow, Wilson and Stanton's Indian, Ceylon, and Java Tea R dated September 23rd, 1898, says:—

QUANTITY BROUGHT TO AUCTION IN LONDON
FROM 1ST JUNE TO DATE.

	Indian.	Ceylon.	Jav
1898-1899...	335,161 packages.	405,915 packages.	15,482 pac
1897-1898...	337,835 „	447,611 „	14,743

39,499 *pkgs.* INDIAN
22,073 „ CEYLON
1,347 „ JAVA
} Total 62,919 packages, were offered in auction this week.

Home consumption from the 1st January shows an improv particularly noticeable in Indian Teas. Re-exports of both Indi Ceylon Tea have also materially increased.

Recent advices both from India and Ceylon indicate only mo shipments to this country. The moderate prices at which good liquoring Teas can now be purchased should increase their consu in the United Kingdom, and promote their use in external markets

Indian and Ceylon Tea (in lb.) exported from Great Britain, from 1st January to 31st August.

	1898.	1897.	1896.	
Indian ...	4,319,045	3,281,688	2,083,717	2,3
Ceylon ...	7,644,380	6,837,476	5,206,535	4,5

Indian. No quotable change has taken place from prices curre week; competition was fairly general, but ran principally upon liquoring Teas. The official wire gives exports to U. K. for first September as 10,250,000 lb., against 9,960,000 lb., making the tota 1st April to date, 58,167,000 lb., against 58,150,000 lb. for the period last year. The following averages may be mentioned:—"Poo 1/6¼; "Arya T Co.," 1/5¾; "Pabojan T Co.," 1/4¾.

Total Tea sold on Garden Account 1st June to date 1898, 228,388 av. 905d. 1897, 235,060 pkgs., av. 9·13d.

		1898.	1897.	1896.
DUST.	(Fair ordinary, dark liquor) ...	3½d	3½d	4¾d
FANNINGS.	(Red to brown, strong rough liquor) ...	4d	4d	5¼d
BROKEN TEA.	(Brownish to blackish, strong liquor) ...	6d	6d	7¼d
PEK. SOUG.	(Blackish greyish, useful liquor).	6½d	6¾d	7¾d
PEKOE.	(Greyish to blackish, some tip, useful liquor) ...	7¾d	8¼d	9¾d
PEK. SOUG.	(Blackish greyish, inferior liquor).	5d	4¾d	5¼d
PEKOE.	(Blackish greyish, some tip, inferior liquor) ...	5½d	5½d	6d

Ceylon. There was an appreciable improvement in quality tending to raise quotations and produce a generally better tone. good bidding the market hardened a little, and all grades must be slightly firmer. Private telegraphic advice gives exports to U. first half of the month as 3,500,000 lbs., against 3,000,000 lbs. fo period, 1897; and estimates the quantity available for whole mo 6,750,000 lbs. Averages:—"Udaveria," 1/1¼; "M C Co Mahadd "Nayabedde," 1/1; "ST Co St. Leonards," 1/0¾. Average 8·34d. nearly 8¼d. same period 1897.

Ceylon Tea sold on Garden Account 1st Jan. to date 1898, 8 pkgs., av. 7·73d. 1897, 844,692 pkgs., av. 7·62d.

		1898.	1897.	1896
PEKOE SOUG.	(Ordinary leaf; fair liquor) ...	6½d	6¼d	6¾
PEKOE	(Ordinary leaf, little twist; fair liquor) ...	7¾d	7¼d	8¼
PEKOE SOUG.	(Rather bold leaf; indifferent liquor) ...	5¼d	5¼d	5¾
PEKOE	(Somewhat bold leaf; indifferent liquor) ...	5¾d	6d	6¾

Java. The Javas were all of direct import. The selection was and contained both good and poor liquoring Teas. Prices were mair the market being steady throughout.

PUBLIC SALES OF SOUTH INDIAN TEA.

(AVERAGE FOR ALL INDIA 9·65d.) *September 16th.*

GARDEN.	Total.		Broken Org. Pek. or Flowery Pekoe.		Pekoe and Unassorted.		Broken Pekoe.		Pekoe Souchong.		Broken and Souchong.		Fannings, Dust, and Various.	
	Quantity	Price.	Quantity	Price.	Quantity	Price.	Quantity	Price.	Quantity	Price.	Quantity	Price.	Quantity	Price.
eilgherry ...	**138**	**6·30**												
...	47½c	5½	...	...	...	...	...	...	...	...	47½c	5½	...	...
rospect ...	91	6½	...	...	28	6¼	31	7¼	32	5¾	...	...	...	...
ravancore ...	**1000 p**	**6·07**												
onaccord ...	218 p	6¼	...	...	97	6½	49	6¾	31	6	...	...	41 p	3½6¼
reat Valley ...	73 p	5¼	...	...	41½c	5¼	28½c	5½	...	...	2½c	4¾	2	3
inmylies ...	72 p	5½	...	...	67½c	5½	...	...	4½c	5	1½c	4½	...	...
ahandragherry ...	71½c	5½	...	...	65½c	5½	...	...	4½c	5	1½c	4¾	1½c	3¼
erchiston ...	23½c	5¾	6½c	7	15½c	5¼	2½c	6¼	...	...	...	...	...	...
oonmudi ...	156 p	5½	...	...	74	5½	35	6¼	27	5½	...	...	20½c	3¼5
h Trav Est Ven...	152	6¼	43	7½	84	5¾	...	...	24	5¼	...	...	...	...
agbrook ...	170	6¼	106	6 6¼	41	6¼	...	...	15	5¾	...	...	8	5
ravancore T C P...	65	5¼	...	...	65	5¼5½	...	...	...	...	...	...	...	...

(AVERAGE FOR ALL INDIA 8·77*d.*) *September 23rd.*

ravancore ...	**157 p**	**5·44**												
sfield T Co Isfield...	107	5½	...	...	45	5½	23	6½	39	5	...	...	...	...
iverside ...	50 p	5¼	...	...	34	4¾	14	6¼	...	...	...	...	2½c	3

IN AUSTRALIA.

Messrs. Alfred Harvey and Co. state in their Monthly Melbourne Tea eport :—

Shipmets from all ports are 11,716,000 lb., as against 10,140,000 lb. at ame time last year.

The *Argus* arrived from Calcutta on the 10th with 450,000 lb., of hich one-half is for Melbourne, which quantity will be sold publicly on he 15th and 23rd. The *Bhundara* and *Fazilka* are also afloat, which ring the shipments to the Colonies up to 1,956,000 lb. The market in alcutta is somewhat easier for the better grades, but remains strong for he commoner sorts.

Ceylons have been in short supply, the continually firming market in olombo and the scarcity of freight checking buyers. Very high prices ow rule for all common kinds, except Dust, and the market keeps firm at ull rates for all higher grades.

Chinas are still arriving in restricted quantities. The *Changsha* rrived on the 25th August, and the *Australian* on the 9th September. he market in Foochow is also reported as very firm at high prices for all emaining stocks, which latter are now reduced to smaller demensions han at any previous time at the same date.

The outlook is in favour of short supplies of all kinds of leaf through the igh rates ruling at the various ports of shipment, and consequently a rm market at probably higher prices in all the colonial market; and ealers should not overlook the position of stocks in bond, which appears ingularly favourable for speculators to operate upon.

Stocks in bond on the 3rd September were 1,381,363 lb.

Total Shipments to Colonies :—

Season.	Foochow.	Hon Kong.	Colombo.	Calcutta.	Total.
	lbs.	lbs.	lbs.	lbs.	lbs.
897-1898 ...	4,593,000	1,500,000	13,670,105	6,632,460	26,395,565
896-1897 ...	6,200,000	1,500,000	11,793,882	6,197,450	25,691,332
895-1896 ...	11,262,500	1,500,000	10,306,506	6,620,126	29,689,132

SYDNEY, *September 17th.*—Messrs. Alfred Harvey & Co. held a sale of ea at the Chamber of Commerce sale-room yesterday, at which there was good attendance of the trade and a moderate clearance was effected at atisfactory prices. The selling brokers report :—"We offered on account Dalgety & Co., Limited, 265 packages Ceylon, and sold 165 packages at ¼d. to 10¼d. We also offered on account Messrs. A. Tange & Co., and the olombo Commercial Company, 146 packages Indian and 258 packages eylon teas." All the Indians were sold from 6¼d to 7d, and 133 ackages Ceylon from 7¼d to 1s 0¾d.

SYDNEY, *September 20th.*—A little inquiry was made for tea privately, nd sales were mentioned of 300 packages of China at 6d to 7d; also 50 three-quarter chests at 6¾d, and 25 half-chsts of Ceylon Rroken Pekoe at 13½d.

MELBOURNE, *September 21st.*—About 1,050 half-chests of common to good Panyong tea was quitted at full rates, and 225 packages of Ceylon at 6½d. to 9¼d.

PEPPER.

London advices of 23rd September say :—

Black.—There has been more business doing this week, but at lower prices. Singapore on the spot has been sold at 4⅝d to $4\frac{11}{16}$d for fair, at $4\frac{11}{16}$d August-October (s.) $4\frac{25}{32}$d to 4¾d September-November, at $4\frac{13}{16}$d to $4\frac{29}{32}$d October-December, and at $4\frac{29}{32}$d to $4\frac{15}{16}$d for November-January. Sales 300 tons. The market at the close is firm, and sellers now ask $\frac{1}{16}$d advance on above quotations; $4\frac{23}{32}$d reported paid for Singapore on the spot.

At auction on the 21st inst., 455 bags Singapore were bought in at 4¾d, also 451 bags Penang at 4⅜d, and 397 bags Tellicherry at 4¾d per lb.

White has also been sold at easier prices, but is firm at the close. About 200 tons have been disposed of during the week, embracing Singapore at 8d to 8⅛d for fair on the spot, at 8⅛d near at hand and August-October, at 8⅜d to $8\frac{7}{16}$d October-December. Siam at 8⅜d September-November, and at 8½d for November-January. Penang at 7½d to $7\frac{9}{16}$d on the spot, at $7\frac{17}{32}$d to 7⅝d August-October shipment, at 7⅝d to $7\frac{11}{16}$d September-November, at 7⅝ to 7¾d October-December, and 7⅝d to 7¾d November-January.

At auction on Wednesday 42 bags Singapore passed the hammer unsold at 8⅛d, and 80 bags Siam at 8⅛d; of 69 bags Penang, a lot or two sold at 7½d per lb. for fair.

No sales. Of Singapore White, sales of October-December shipment at $8\frac{7}{16}$d. Penang easier. 30 tons November-January shipment sold at 7¾d and sellers.

GINGER.

Cochin.—In London reports of 23rd ult. we find it stated :—Medium sized cut, which has maintained a very firm tone for some considerable time past, was quitted at lower prices, but other descriptions showed no alteration. Catalogues included 67 cases 477 bags, of which 39 cases 200 bags found buyers as follows :—medium cut and scraped slightly wormy 55s, medium and small rather roughly cut and scraped limed and slightly wormy 43s 6d; medium and small some bold washed rough, 23s to 23s 6d, ends ditto 19s 6d, medium and small Calicut rough 20s 6d, common ends and shrivelled ditto 17s 6d per cwt.

Jamaica quiet. 139 barrels offered, but only 13 barrels sold—middling washed 70s to 73s 6d, ordinary 66s per cwt.

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WRITTEN BY PLANTERS FOR PLANTERS.

VOL. III.] MADRAS, SATURDAY, OCTOBER 22, 1898. [No. 42.

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N. B.—Remittances should be sent to E. C. Duft & Co., Proprietors, "Planting Opinion," 16/17, Armenian Street, Madras.

SEASON REPORTS.

TO OUR SEASON REPORTERS.

Please post your next reports to reach Madras on Friday, the 28th October, 1898.

Season Reports should be sent to the Printers, Messrs. ADDISON & Co., direct, and not to *Planting Opinion* Office.

South Mysore.

MUDIGIRI, 15*th October.—Weather.*—Still more rain than usual, generally at night or late in day. There can be no doubt that late extension of showers is a good thing for our coffee here, even if a little temporary annoyance is caused, but this constant rain is quite another matter. Once a week, or perhaps twice in ten days, is all we want. Digging should be general now, and frequent rain is most undesirable. *Diseases, &c.*—I hear of leaf-disease increasing in some quarters, but from others hear that coffee is thriving. I see no increase myself, and, as this is not a season when one has much leisure for travelling, I am dependent on casual correspondence for information. If the east wind sets in late, hope we shall not have a severe "second go." This has been a great insect year; the cicadas were never so vociferous in any season before, and I have never seen so many spiders and snails as there are now. The former may do some good by strangling an occasional borer fly, but the latter are destroying a small quantity of coffee (prematurely ripe stuff). They seem to suck all the cherry off, so that the beans fall to the ground. I have caught many of them at it this year, but have never noticed it before. *Labour supply* seems to be ample and *Health* good. The plague scare, or rather the inoculation scare, is in full force. There has been one suspicious death (rumoured) in Chickmaglur, which was at once magnified by some of the bad characters of the place into eight deaths from forcible inoculation. The usual story is told that Her Majesty's life is in danger this year, and that a "Ner Beli" or human sacrifice of seven lakhs is required to avert disaster; also that a different and harmless kind of serum is used for Europeans and all who offer themselves at first, and a malignant poison for the others. A correspondent writing about shade says that *Cedrela Toona* is out of leaf in January-February. His must be much later than mine, which are quite thick then. I am one of the strongest objectors to them, because I find that practically coffee under them crops badly though it generally looks well. My idea is that the sudden fall of leaf at

the end of the monsoon (they are bare bones now) results unless great care is taken in a caking of the surface soil still wet from the present or recent rain, and a premature hardening of the wood. The Taree (*Terminalia bellerica*) loses its leaves nearer the time mentioned, and I find coffee under it often pays well. The soil is drier then, and less liable to cake. In addition there is, of course, a nice mulching deposit which the *Cedrela* does not give to such an extent, and besides a hardening of the wood in January is to be desired, and in some situations not always obtained under shade. The *Cedrela*, as your correspondent implies, is a very long time out of leaf. *Grain.*—I have no change to report; the rain seems to be excessive in the maidan, and ragi is said to have been damaged in parts.

ELECTRIC NITRATE.

In his recent address, the President of the British Association, 1898, opened up a new field of scientific speculation and experiment. Indeed, he almost hinted that speculation and experiment were at an end, and that it only remained for capital and science to reap a rich harvest from recent discoveries. Some of his remarks have already been noticed in our columns, but if in giving a brief summary of his suggestions we reiterate to some extent, our readers will scarcely blame us, for the subject is of surpassing interest to planters in South India. It is no less a subject than the artificial production of nitrate. This, it is said, is clearly in view, and at a cost that will compare favourably with the prices current for Chili nitrate of soda. Despite the assertions of sceptics, the immense benefit arising from the use of this product for manurial purposes has been fully proved. For instance, the action of nitrate of soda in improving the yield of wheat has been studied practically by Sir John Lawes and Sir Henry Gilbert on their experimental field at Rothamstead. This field was sown with wheat for thirteen consecutive years without manure, and yielded an average of 11·9 bushels to the acre. For the next thirteen years it was sown with wheat, and dressed with 5 cwt. of nitrate of soda per acre, other mineral constituents also being present. The average yield for these years was 30·4 bushels per acre—an increase of 24·5 bushels. In other words, 22·86lb. of nitrate of soda produced an increase of one bushel of wheat. Planters in Southern India are, we believe, largely believers in a fairly liberal use of nitrates, and though we give on another page an extract showing what can be said from the "opposition" point of view, our opinion is that experience in the coffee districts of India justifies the belief that an addition of nitrates to an exhausted soil is in many instances highly beneficial to its cropping capabilities. the question of the duration of supplies from Chili has frequently raised, and as 20 to 30 years appears to be a estimate, it is obviously important, in the face of stea increasing population, that other fields of supply shoul sought or made.

Sir William Crookes points out that nitrate of so the only available compound containing sufficient nitrogen to be used on a world-wide scale as a nitro ous manure. He then proceeds to state that in its state nitrogen is one of the most abundant and per ing bodies on the face of the earth. Every square of the earth's surface has nitrogen gas pressing o on it to the extent of about seven tons. The problem, is to harness the nitrogen of the atmosphere, to fix it in manner that it may be turned to practical use by agr turists. Attempts in this direction have been made for y past with more or less success. A certain amoun atmospheric nitrogen *can* be fixed by several meth but so far every method has proved too costly. Here that the President of the British Association comes to front. Years ago he showed that nitrogen is a combus gas. He now adds:—"The reason why when once ignite flame does not spread through the atmosphere and de the world in a sea of nitric acid is that its igniting poi higher than the temperature of its flame—not, there hot enough to set fire to the adjacent mixture. Bu passing a strong induction current between terminal air takes fire and continues to burn with a powerful fl producing nitrous and nitric acids." He further sugg that this inconsiderable experiment may not unlikely le the development of a mighty industry destined to the great food problem. With the object of burning nitrogen from air so as to leave argon behind, Lord Rayl fitted up apparatus for performing the operation larger scale, and succeeded in effecting the union of grammes of mixed nitrogen and oxygen at an expendi of 1 H. P. Following these figures, it would require Board of Trade unit to form 74 grammes of nitrate of s and therefore 14,000 units to form one ton. Workin this basis, dismissing electricity from coal and steam eng as too costly for large industrial purposes, and referrin Niagara, where water power is used, Sir William Cro observes that there electricity can be sold at a profit one-seventeenth of a penny per Board of Trade unit. this rate nitrate of soda would cost not more than £5 ton. But, he adds, the limit of cost is not yet reached, it must be remembered that the initial data are derived small-scale experiments in which the object was not econ but rather to demonstrate the practicability of the com tion method, and to utilise it for isolating argon. now electric nitrate at £5 a ton compares favourably Chili nitrate at £7-10*s.* a ton, and all experience shows when the road has been pointed out by a small labora experiment, the industrial operations that may follow always conducted at a cost considerably lower than c be anticipated from the laboratory figures. As to whe sufficient electricity can be generated to draw enough ni from the inexhaustible stores of the atmosphere, Sir Wil points out that Niagara alone is capable of supplying required electric energy without much lessening its mig flow. And this to bring about a production of 12,000 tons of nitrate of soda annually.

The Wynaad and the Planting Industry of Southern India, by Francis Ford. Re.1.

The Planting Directory of South India for 1896. Re.1-8.

Sketch History of the Planting History of Wynaad, by the late Adolphus Arthur Wright. Re.1-8.

Report of Observations of Injurious Insects and Common Crop Pests during the year 1883, with Methods of Prevention and Remedy, by Miss Eleanor A. Ormerod, F.R.Met. Soc., &c. Re. 1-8.

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Having thus shown that this authority considers electric trate a commercial possibility, we go back to our remark hat the subject is one of special interest to the South ndian planter. That he requires nitrate of soda, is well nown; that his consumption of it would be greatly in-reased if the cost were appreciably less than it is, will be eadily admitted. The points to be considered are, whether e can obtain all he wants, and at a price that will render s use profitable to him. Granted that electric nitrate is roduced and offered in the markets of the world at a low rice, the South Indian planter will certainly be numbered mong buyers. Whether, however, he will try the Niagara roduct will depend upon its cost *delivered on the estate.* t is possible that the huge water-power of the Periyar roject might be brought into rivalry with Niagara. We annot for a moment suppose that the cost of the electri-ity produced at Periyar would compare favourably with hat produced on an immense scale at Niagara. If, how-ver, we set against the difference of cost the expense that ould be incurred in bringing nitrate of soda from Niagara to South India, we see that Periyar starts with a erviceable handicap. If, therefore, further experiment hould prove Sir WILLIAM CROOKES to be right, and lectric nitrate should become a commercial product, we nay reasonably hope that the capabilities of Periyar as a roducing centre will not be overlooked. We would, how-ver, express the hope that when further experiments are nade on the lines of Sir WILLIAM CROOKES's suggestions, some ttention will be given to the question whether a with-drawal of nitrogen on a very large scale from the atmosphere n a particular locality would be likely to have a marked effect, either beneficial or prejudicial, on human health in hat locality.

COFFEE ESTIMATES.

THE remarks of "M" in our correspondence columns are no doubt a fair exposition of the views of Indian Coffee planters with regard to the subject of Coffee Estimates. It is noticeable that "M" observes that the fact of publishing estimates would cut both ways in regard to the course of prices in consuming markets, but does not remark the same concerning the effect with respect to planters personally. Apparently he holds that these gentlemen would be as averse to publication of their successes as to the public announcement of their non-successes. It may be so. We can only say from the point of view of the outsider that the reluctance manifested in the matter of giving estimates appears regrettable and shortsighted. "M's" letter clearly shows that such estimates would convey to the initiated alone an idea of the incomes of individual planters or the fertility of particular districts. They show that even experts might be misled: they might then be liable to overvalue as well as to undervalue. So we have the "cut both ways" again! Then "M" asks, would there not be speculations in "arrivals" if crop estimates were forthcoming. In all probability there would, but we have yet to learn that planters would be losers thereby. They might if they misjudged the position, but if they gauged it accurately they might just as easily be gainers. However, our anticipations will be fulfilled if our coffee friends say, "No estimates."

GAINERS BY EXCHANGE.

WITH reference to "Observer's" remarks in past and present issues, we may say that it is not our desire to encourage discussion on the Currency Question in these columns. It may appear to us desirable to throw out a suggestion now and then, but the Currency problem can be better discussed in the daily press than in a technical journal. The aim of planting currency-reformers should be to convince the general public, not to appeal to planters themselves, whose purses have served as admirable currency barometers. At the same time, it may be well for us to state that we do not hold that high exchange is beneficial to India as a whole. On the other hand, however, we are satisfied there is a limit below which the rupee cannot fall, just as there is another limit above which it cannot rise, without positive harm and loss being inflicted on the country. What the happy mean is we have so far found it impossible to determine. It is a matter that could probably only be settled after some years of careful watching of the movements of an untrammeled, *natural* currency. The main point our recent article on "Gainers by Exchange" was meant to bring forward was that, be the profits of producers what they may when Exchange declines, the profits of holders of land under the Permanent Settlement must be immensely increased, and that thus low Exchange at least tends to enhance the evil effects of one of the biggest administrative blunders ever perpetrated in India. In view of "Observer's" latest remarks, it may be well to add that the "Zemidnars of Bengal" are by no means the only gainers by the Permanent Settlement. We do not reprint the article on "Cheap Silver in Mexico" referred to by our correspondent, for it seems to us that the recent prosperity of Mexico is due to very different causes from a mere "fall of Exchange." Nor does it appear necessary or desirable for us to inflict upon our readers a treatise on political economy. Our object has been, and will be, to remind planters that there are other interests besides their own, and those of agriculturists generally, to be considered; and that they would be wise not to argue in a one-sided manner, but to show from the first that inclination to recognition of conflicting interests, without which no proper settlement of the Currency problem can be arrived at.

COFFEE IN THE STRAITS.

IT is reported from the Kuala Lanyal District that, from the pepper and gambier estate at Sepang, the greater part of the land taken up has been planted with coffee or coconuts. Much of the land planted with coffee by Malays has been sadly neglected by the owners. Coffee cultivation is eminently unsuited to Malays, who will not devote the labour and time required to bring the trees into bearing. The general idea amongst them seems to have been that they had only to plant up an acre with coffee and sit down for a year or two, in order to realise a fortune. Experience has, to a very great extent, now disabused them of this notion, and it is not anticipated that many fresh applications for coffee land will be made, nor will such applications be encouraged. On the two European estates at Telok the coffee is still young; but some 70 acres belonging to Mr. Borring, which came into bearing, is reputed to be as

fine as any coffee yet produced in Selangor. In the Ula Langat District there are five European-owned estates, and the total area of coffee under cultivation at the end of the year was 1,435 acres. Part of the Kuala Selangor District would appear to be unsuited for coffee-cultivation. An official report states :—"Javanese who took up land on the Bukit Rotan Road and planted it with coffee, which was destroyed by flood water, the drain having been dammed by the Public Works Department to use as a canal for transport of metal, have now most of them planted coconuts as also have many others who hold land on the inland side of the Coast Road which, as my predecessor pointed out, acts like a long dam from Sabak to Kapar, as if built purposely to prevent the water getting to the sea. By planting each coconut on a mound six feet high it has a chance to get a start without being flooded; but you cannot grow coffee like that." Mr. Francis Welford's coffee estate at Kampong Nior is improving; the whole estate will be very soon completely drained, which will allow the land to be worked more effectively. Mr. Welford has now about 100 acres of coffee planted. Mr. Tollemache has done a good deal of draining, felled his first block, and has a fine nursery ready to plant out; his bungalow is now completed. Mr. Tanner, who purchased two of Mr. Jackson's blocks, is just commencing work. Mr. Jackson's other block has not yet been started. Agriculture in Ulu Selangor District consists principally at present of small Malay coffee gardens, inter-planted with fruit trees; and bearing, where an acre or two of swampy land presents a favourable opportunity, a small crop of "padi." Except at Ulu Yam and Ulu Bernam, there is no serious attempt at rice cultivation on any considerable scale. The combined effects of the low price of coffee and the high price of rice, generally prevalent during 1897, were severely felt by the owners of these small plantations, and there is now little or no demand for coffee land. Many of the planters realise that their chief interest should lie in the production of a sufficient quantity of rice to render them independent of the market outside. Titles for Mr. Pasqual's coffee estates at Serendah were prepared and issued during 1897, and applications were received and registered for additional blocks from him and from Messrs. Melkle and Glassford, who are planting coffee at Batang Kali.

NOTES.

Coffee Prospects. The American *Grocer*, after giving statistics showing the World's supply of coffee on 1st September, adds :—"These figures show a total visible supply equal to about one-half the world's production—a pretty good insurance against any rise in price until there is a marked failure in production."

Ceylon Tea Estimates. The Kandy correspondent of the *Ceylon Observer* wired on 14th instant :—The weather is changeable, part of the days being wet and part sunny. The estimate of the Tea Crop is likely to be realized. October and November are expected to be good months. The bug in lantana is very bad in some places and is spreading to other plants around Kandy.

Calcutta Tea Sales. The average at the auction of 5th instant was As.5-4 pies. On 12th instant 18,300 packages were sold. Bidding was brisk at rather firmer rates than last week, good kinds being keenly competed for. There was a fair demand for Bombay and other outside markets. The average of the last tea sale was 5 annas and 8 pies. Nineteen thousand packages were to be offered at the sales on Tuesday last.

The British Tea Duty. *Apropos* of the question of the Reduction of the British Tea Duty Mr. Wm. Mackenzie reports that the press in Canada is taking up the question of a differential duty in favour of British-grown teas. That is by no means what is wanted and it is to be hoped that British tea-growers will protest. They claim fair-play in regard to the Currency question let them not claim anything else in respect to duties.

Coffee in Zanzibar. About 60 young Arabian coffee trees are growing in the Nursery from seed obtained from Nyassaland. They look well and will be planted out, though they can hardly be expected to prosper in Zanzibar as the elevation is too low. Liberian coffee was sown late in the year and has not yet germinated. Attempts have been made to procure seed of the Maragogipe coffee, Brazilian variety, but none has yet been received.

Colombo Tea Sales. At the public sale of tea at Colombo on 12th instant, about 7,809 pkgs. = 612,019 lb. were offered, of which about 6,486 pkgs. = 505,776 lb. were sold. The sale again passed off with a very firm tone for all grades. The finest teas in the sale were: Iona, Middleton, High Forest, Hornsey and Agra Ouvah. Amongst low-grown tea some of the best were :—Fred's Ruhe, Arapolakande, Polatagama and Clyde.

Coffee Nurseries in Mexico. A pamphlet recently issued by the Mexican Gulf Agricultural Co states that the nurseries of Dos Rios are the largest in the world. They contain 5,000,000 coffee trees and 500,000 rubber trees. Three tons of coffee were planted for seed. Figures: coffee trees planted in Sitio 1, 850,000. 860,000 trees planted in Sitio 3. Rubber trees planted in Sitio 1, 125,000. 175,000 trees planted in Sitio 3. Labourers employed in 1897, 350. $36,200 worth of merchandise sold in our store in 1897.

Check Rolls. An old subscriber to a Colombo paper suggests a novel prize competition, viz. :—"That a prize of R100 be offered by the

COFFEE SHADE TREE.

Sun-dried Erythrina Lithosperma loppings, &c., contain per ton :—

61·50	lbs.	Nitrogen.
57·38	„	Potash.
14·92	„	Lime.
13·68	„	Phosphoric Acid.

Seed cured under Messrs. Sutton and Sons' advice.

Orders should be booked early for the 1898-1899 crop of seed from the parent trees of above analysis at Rs.6 per pound containing about 2,000 seeds. *Germination guaranteed.*

Only thornless variety extant, and is not procurable anywhere save from the

MANAGER, ARIENKOW ESTATE,
Shencottah.

Planters' Association for the best system of keeping a check-roll, both daily and monthly, by which coolies should be paid by the lb. of leaf they bring in." He remarks:—"Simplicity should be a leading feature in the system. An *unsigned* copy of each system to be sent to the Chairman of every District Association, and the prize to be awarded by their votes. Should they not consider any system perfect, no prize need be given. Competition open to all."

Florida Velvet Beans.

Mr. J. P. William writes to the *Ceylon Observer*:—The result of the Florida Velvet bean seeds planted at the above estate by me imported direct from Florida two weeks after your free distribution is now as follows:—Planted in rich soil, creeper 12 feet high and growing about 1 foot a day, flowers have appeared two feet from the ground up to 8 feet, throwing out many branch creepers. 2. Plants in gravelly soil 6 to 7 feet high, no flowers or branches yet. 3. Plants in sandy soil 3 to 5 feet high, no flowers or branches yet. Growth in gravelly soil about 4 to 6 inches and in sandy soil (moist) 3 to 4 inches, ditto (dry) 1½ to 2 inches a day.

The Consumption of Tea.

Capital remarks:—It is common experience that Indian teas go further in ordinary household use than do Chinese teas, the former making a much stronger infusion from a given weight of leaf than do the latter. It is pointed out by the Commissioners of Customs, in their report issued last month, that when, as in the past financial year, we find an increase in the use of the stronger article to the extent of over 7,000,000lb. and a decrease in the use of the weaker article to the extent of over 3,000,000lb., it is evident that the progress of consumption is even greater than is indicated by the mere numerical difference in the aggregate number of pounds cleared.

Rubber Trees.

Messrs. J. P. William and Bros., of Henaratgoda, Ceylon, have issued two very interesting "new product circulars:" No. 30, on *Hevea Brasiliensis* (Para Rubber), which is described as "a most profitable tree yielding rubber, oil and fodder;" and No. 31 on *Manihot Glaziovii* (Ceara or Manicoba Rubber). A great deal of very interesting information is given in condensed form, and planters will no doubt be grateful to Messrs. William and Bros. Should any of our readers express an interest in the subject of Rubber Trees, we shall be very pleased to deal with it at greater length. We say but little now, under the impression that few planters in the South are seriously experimenting with either of the trees now referred to.

Java Quinine.

The Bandoeng (Java) quinine factory has not been very successful with its recent shipment of quinine to Amsterdam. At the auction held there on 27th ultimo all the three hundred kilogrammes (say, 10,500 ounces) put up was bought in at 16 florins per kilogramme (about 9*d.* per oz.) Perhaps the China market may be tried next, for the Dutch Consul at Tientsin says quinine is one of those foreign medicines which have obtained a firm footing in China. He is not sure, however, whether the alkaloid is exported to China from the Dutch East Indies, but in any case there is a good outlook for it. As to packing, labelling, &c., inquiry is recommended of the leading import houses. The quantity imported at present is exceedingly small in proportion to the population.

A Simple Insecticide.

Indian Gardening quotes "Old Colonist," who draws attention in the *Australasian* to the tomato cure for the peach aphis. He says that by rubbing the stalks and leaves of the tomato upon the branches and stems of the infested peach-trees, the orchard of Mr. Fleming, of Flemington, was completely cleared of the pest. If an infusion of the tomato plant was made and sprayed on to the fruit-trees in the usual manner, equally good results would doubtless be obtained. Should the pest reappear, a second application should be given, and it is not unlikely that aphis on other trees and plants may be cleared in the same manner. Our Calcutta contemporary remarks:—"Tea and Coffee planters should make a note of this, especially in the case of scale, aphis and mealy bug."

Tea Infusion!

"The unremunerative prices obtained for tea throughout the season ought," writes a correspondent to the *I. P. G.*, "to induce planters to call in the assistance of the chemist in order to ascertain whether it may not be possible to send forward the ready-made infusion in casks or bottles. It is a well-known fact that the difficulty of creating a taste for Indian tea lies, firstly, in the absence of mixing the strong and weak together—blending; and, secondly, in the faulty method of concocting a brew or 'dish of tea,' as it was once designated. Liquid tea evolves mould or mildew, but so do other preserves, though in all cases a very small 'exhibition' of chemicals, as the chemists say, prevents this, and I see no reason why the same success should not attend the doctoring of tea."

The London Tea Market.

Reuter wires on 12th instant as follows:—"Market steady. Pekoes and pekoe souchongs firm and dearer for all kinds. Orange pekoe and broken pekoes rather irregular." Messrs. Gow, Wilson and Stanton telegraphed to Colombo on 13th instant:—The market generally is steady. Good liquoring Pekoes are in improving demand. The Market for poor liquoring teas is steady. The price of fair liquoring Ceylon Pekoe Souchong is 6½*d.* The average price of Ceylon Tea sold on Garden account this week was 8¾*d.* (¼*d.* up). Reuter reported on the same day:—*Ceylon Tea*:—Common qualities are irregular, and others remain firm. Packages offered 13,000; Packages sold 12,000; Fair Pekoe Souchong 5½*d.* (unchanged); Average of week 8¾*d.* (½*d.* up); *Indian*:—Packages offered 49,000; Packages sold 47,000; Average of Indian Tea 8¾*d.* (⅛*d.* down).

A Tea Problem.

"Coffee and Tea Planter" and one of his friends have been discussing a problem:—"Is it true that a great deal more money has been brought into Ceylon than has ever been or will ever be taken out of it; and that Ceylon owes its prosperity not to what the soil has produced, but to the constant influx of capital, a proportion of which is lost every year?" "C. and T. P." says that the Editor of the *Ceylon Observer* has been appointed umpire, and he accordingly writes that gentleman:—"It would be very interesting to know the extent of

the losses or profits in connection with coffee, cacao, cardamoms, cinchona and tea—of course crediting all cultivated area on the basis of the present profits. On which side would the balance be, think you?" The umpire rather cries off the cracking of the hard nut presented to him, saying, "We do not see how the necessary information as regards the estates of private proprietors is to be got, to enable any reliable reckoning to be made." He further remarks:—"The late R. B. Tytler made out after 40 years of coffee, and before the final crash came, that only 10 per cent. of all the planters he knew, from the practical beginning of the enterprise in 1837, had bettered themselves materially by coming to Ceylon." And then suggests:—"Let our two friends make a similar calculation for tea—only it is rather too soon to do so, until we see what the next few years are to bring about. One thing is certain: that whether there is a due return or not for all the capital introduced, all those dependent on tea in the island—coolies, artificers, cartmen, etc.—and the general revenue especially, benefit by its introduction. Every acre opened means employment for so many more people and so much more grist to the Government exchequer." The answer must be almost more discouraging to planters than the question.

LETTERS TO THE EDITOR.

LADY-BIRDS.

SIR,—My letter on the lady-bird in your issue of October 1st was simply to record the fact of the experience of a planter of Hawaii, who was very certain that it was the larvæ, and not the lady-bird, that eat the scale.

I do not dispute the fact that "Lady-Bird Junior" saw a lady-bird sucking in scale, but it seems odd that in Hawaii the lady-birds did not eat the scale, and they were supposed to have the right kind.

OLD PLANTER.

THE EXPORT DUTY ON BONES.

SIR,—In the report of the meeting of the U.P.A. held recently in Bangalore I note the President's remarks on the subject of the proposed duty on bones.

The President's explanation on the subject implies (quite unintentionally, I am sure) that responsibility attaches to me for the non-effect given to the resolution passed at the Annual Meeting in August, 1897. I beg to disclaim any responsibility in the matter.

I introduced the subject and said all I had to say in favour of the resolution, and was therefore unable, subsequently, to suggest any line of argument or arguments other than those advanced at the meeting and considered sufficient to gain the passing of the resolution.

FORELAND, ISLE OF ISLAY,
26*th Sept.*, 1898. O. SCOT-SKIRVING.

"GAINERS BY EXCHANGE."

SIR,—In your remarks on my article of October 8th you state that my remarks on the "balance of trade" are of a character "to provoke ridicule on the part of the modern school of political economy." I fail to see why you do not show the reason for the remark, and I would draw your attention to an article headed "Cheap Silver in Mexico," which appeared a few days ago in the *Madras Times*. The above article fully bears out all I have advanced; it says "Commerce ha not suffered as the purchasing power of the country has bee largely increased by the stimulus to exportation afforded by chea silver, and therefore cheap labour." In fact, the whole article full of facts, and I enclose it as you may care to print it.

From the general tenor of your remarks I gathered yo were averse to cheap silver. I may be mistaken. Of course I agre with you that the Permanent Settlement was a gigantic blunde and it is only a proof of the financial inability of the Governmen that it has not long ago devised a means of reaching the pocke of the Zemindars of Bengal. At the same time they do n represent all India.

I could not prove by figures that the country had gained lost by a high exchange, as I expressly stated that five years mu elapse before a balance could be struck, but the fact of Ind being thirty millions to the good before the raising of the valu of the rupee was in part a proof of India having gained unde a low exchange.

It is clear that Mexico has largely gained, and so should Ind if there was no forty per cent. duty on exports.

OBSERVER.

DISTRICTS BEST SUITED FOR TILLAGE WITH SALTPETRE.

SIR,—Nitrate of Potash (KNO_2) or saltpetre: I see l your journal an enterprising philanthropic planter under th *nom de plume* of "TODA" volunteers to prepare pans for the makin of nitrate of potash. It is to be hoped the good, hard working plan ers in coffee will give him all the support they can, since he h taken up the work in a most generous spirit. Such Coffee Com panies as are left by the Mercantile firms having coffee estate with ample money at their back, will show a little enterprise whic would be for the best interests for the staple that departme of their firms live on coffee. It should be borne in mind that saltpetre has a great affinity to moisture, it would be unwise use it on estates situate near the ghats, where there is a heav rainfall. In your Presidency the districts of Dindigul an "Trichy," owing to their intense heat and the dry winds the prevalent, cause the moisture in the land to be drawn to th surface, leaving it in some of the "bottoms" of level valleys to as a hoarfrost on the surface. In parts of Bengal, where th land is deeply impregnated with it, it lies very thick, giving wintry appearance to the part in the dry winters enjoyed by th favoured province, so that it will only be of benefit to coff districts having a light rainfall, as Kotagiri, Shevaroys, th eastern part of Coorg District and, northerly to it, the Provin of Mysore. All these good crop-bearing districts will be benefite by it; but even here the writer would presume to suggest that compost be made to hold this salt, which has such a tireson affinity to water, so that the compost acting as a vehicle may, the same time, so far hold it as that the spingiols at the ends the roots may have it placed so that they may obtain it.

It would, therefore, appear that it would be best applied as "top dressing" of a clayey mould or humus capable of giving to the part where it is required the full benefit of it. As estates with a heavy rainfall it would, it is to be feared, run on the first heavy showers,—some clever planter may devise "method." "Nitrate of Soda" occurs in immense quantities the southern extremity of Peru in the Province of Tarapaca, an incrustation or compact stratum several feet thick (!) in th Pampa of Tamarugel—an arid plain situated in a region whe rain never falls. The salt is dissolved in hot water, the solutio poured off from sand, and evaparated to the crystallizing poin the crude salt is of a yellow or reddish colour. From the shap of the crystals it has been called "cubic nitre;" it is also know as Chili saltpetre at home.*

* How Crops are fed, p. 252.—Prof. Johnston, M.A., Yale College.

It is extensively used in growing green crops; an Engineer friend, whose brother is a Scotch farmer, told me that its intense powers of fertilising the crop so drew the strength from the soil that when the field was laid afterward in vetches, the part where the firmer crop had been treated with nitrate of potash, the crop was very poor from the exhaustive effect on the soil. *Verbum sap.* One would presume to think it would greatly stimulate the tea plant, particularly as this stimulant acts on foliage. This might help the Ceylon Planters to face the continuance of the 1/4*d.* exchange, which one hopes will be permitted to be fixed at 1/3*d.*, though Sir Patrick Playfair's speech to the Bengal Tea Association looks as if London and the Import trade would have it all their own way. Coffee throve when exchange was 1*s.* 10*d.*!

I am glad to observe that the Geological Survey have confirmed my strong belief in the great advantage coffee has growing on a gneissic subsoil. The result of their excellent work in Coorg goes to prove that all the most prosperous estates lie in gneissic subsoils, or rock bed. To this fact, combined with a light rainfall, may be attributed the staying powers of the coffee trees on the Shevaroys.

4½, Esplanade, Calcutta,
21*st Sept.*, 1898. E. A. Quarme.

COFFEE ESTIMATES.

Sir,—In the leader in your issue of 8th October on the above-named subject you remark that "you would be placed under a lasting obligation if some one would explain the objections planters have to furnishing estimates. I think I can point out the chief of these. In the first place they dislike the inquisitorial nature of the proposal, and in this respect I would remind you that the coffee estates in Coorg and Mysore (and for the matter of that throughout S. India) belong for the most part to individuals and not to public companies. These latter, in order to satisfy their shareholders, and to keep them *au fait* with the progress of the concern, are bound to furnish information of various descriptions, among others estimates, but this is not so with the individual. There is no call upon him to make public his private affairs; unless distinct advantages are likely to accrue, he will not do so. The publishing of estimates, or actual outturns of crops, is more or less equivalent in a great many cases, at any rate to those who are in "the know," to a revelation of income, and it is needless to express how all the world over men, especially those whose means of subsistence are small, object to the extent of them becoming known. What a hubbub there would be if the members of the Madras Chamber of Commerce were asked to furnish estimates annually of their anticipated profits or losses! and yet it would be closely analogous to asking planters for crop estimates. Another objection is that bare figures are often very misleading. This is essentially true of the coffee-planting industry. In the different districts circumstances vary to an extent unknown except to the initiated, rendering comparison unfair and misleading unless the facts are also forthcoming. For instance, a certain estate, A, may be endowed with a richer soil and cheaper labour than B, which enables it to show a profitable return on a small crop. In other words, having to manure less owing to its richer soil, and to spend less on cultivation works owing to its cheaper labour, a 2½ cwt. per acre crop will give a profit, whereas B will require 4 cwt. to do so. Year in year out the estimates would probably preserve the same ratio, and if the bare figures without the attendant circumstances were published, they could not fail to have a prejudicial effect regarding the value of the property with the lower average, whereas this might actually be showing a higher profit. Planting properties in S. India not infrequently change hands, due probably to the influences of the climate resulting, alas! too often in premature death and breaking up of health. With the prospect of sale sooner or later in view, it is of paramount importance that nothing should transpire that would unduly prejudice the reputation of an estate. A bad name is easily created, and too great care cannot be taken in this respect. A risk would be run in providing estimates. It might be contended that if individuals do not care to furnish them, the Honorary Secretaries of District Associations might do so collectively, but though the "inquisitorial objection" would have less force, the other, viz., the misleading propensity of figures, would be equally cogent. Districts as well as individuals have their reputation to sustain, and those would be liable to be under-rated whose estimates compared unfavourably with their neighbours.

These then are the two main objections. What advantages can be put in the scale to outweigh them? You say truly that the Brazil crop regulates prices generally, but that an important increase or decrease in East Indian has some effect on the higher qualities. But the fact of publishing estimates would cut both ways, as expected decrease would cause an upward movement, and an increase the reverse, so that though planters would benefit one time, they would lose another. And after all the publication of estimates has only an anticipatory effect, the real regulation of prices is the actual production. At present the influence that East Indian Coffee has on the market is gauged by the actual deliveries, whereas if estimates ruled rates would be affected six months in advance. Would not a more speculative tendency be introduced resulting in an "arrival" business in E. I. Coffee? This would be of doubtful advantage to the producer. At one time prices would rule abnormally high, and another sink perhaps to a lower level than has been touched yet. A large arrival business is of course done in "Brazil," but as yet little in East Indian, and I feel assured that the planter would prefer the comparatively steady rates that now prevail.

Unless more solid advantages than these can be shown, estimates will not be forthcoming.

M.

COFFEE CROPS IN MYSORE.

Sir,—Although it is not my rule to reply promptly to questions which are asked in the public press and with which my name is associated, I entertain such profound respect for the Editor of the *Ceylon Observer* as one who has done yeoman's service for planters generally, that I venture most respectfully to point out that although the coffee crops on these estates and many others in Mysore have undoubtedly been less during the last five years than between 1883—88, the cause is attributable (and clearly proved to be so by carefully-kept registers) to faulty distribution of rainfall. It was my special duty and my earnest endeavour at the meeting of the U.P.A.S.I. to clear away for ever the idea that plant pests have been solely responsible for the diminished yield which has characterized the last five years in Southern India. The distribution of rainfall is far and away more important to agriculture generally than the actual quantity, and although it may be said that in regard

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to Coffee, the great thing is to note how much rain falls in the locality between January and May, I would go farther and maintain that as the success or failure of a crop is entirely dependant on the blossoming of the trees, it is absolutely essential that the rainfall be properly distributed so as to produce properly developed bearing shoots and that rain must not be either in defect or excess during the critical period when the flower is maturing. I have heard of a grower of rare flowers in England having lost hundreds of pounds in a single day owing to faulty arrangements in the glass houses connected with maintenance of the requisite amount of heat, light and moisture. I regret to have to record the fact that I have lost many thousands of pounds during my life by the faulty distribution of rainfall during the blossoming of Coffee.

The most complete immunity from plant-pests or all the culture in the world will not prevent loss occurring if the rainfall is badly distributed at blossoming and other critical periods of the coffee plant's existence.

It is a well-known fact that during the last five years agriculture in India generally has suffered very serious losses. The question asked is a personal one. Mysore is a very large territory, and one of its peculiarities is the varieties of climatic conditions which are met with or experienced in localities situated only a few miles apart. I hope, therefore, that any general statements I may make may be understood mainly to apply to the estates within a few miles of those in which I am interested, even though I feel sure they also apply to many others which are situated in localities where the climatic conditions are identical with or nearly the same as those under which my experience has been obtained.

The great famine in Mysore in 1877 was caused simply by the failure of a few showers in September when the millet was about to throw up its fruit-stalk. In the same way, I hope, the following statement will clearly prove the principal reason of the coffee crops being small, not only on these estates but on many others in the years 1896, 1897 and 1898.

In 1896, after one of the hottest and driest seasons imaginable (nearly $5\frac{1}{2}$ months without a single drop of rain), a shower of 42 cents of rain fell on the 11th April and was followed two days afterwards by 9 cents. This fall was not followed up during the ten days which constitute the period in which the blossom is either matured or ruined. The effect on well-formed spike can readily be imagined.

In 1897, rain commenced, after a late crop and before "spike" was formed, on the 16th February, and 1·55 inches fell between that date and the 19th February, but this rain was not followed up until 15th April.

The result was a grand flush of early wood and no subsequent budforming.

In 1898, 4·28 inches of rain fell in eleven days in April, of which ·41 cents fell on the open blossom, and these showers were followed by 1·28 inches immediately after the blossom had matured.

The show of flower was the finest I have ever seen in my life, but a large percentage was ruined by the heavy rain interfering with fertilization.

A few estates which had favourable rains in March and early in April in all three years did very well and picked crops above their average. During this last season also, nearly all the estates in Northern Mysore had excellent rain in March to bring out their blossom, and it is the exception to hear of any of those properties doing badly.

During all the years between 1883—88 we had the most perfect blossom showers, and the crops were in the aggregate magnificent in spite of plant-pests and abnormally irregul aggregate rainfall.

No accurate deductions can be made except from an analy of the distribution of rainfall during the blossoming seas and the North-East Monsoon when the shoots, for the followi year are maturing.

The aggregate rainfall during 1896 and 1897 was 232·52 inch and produced two of the worst crops on record.

The aggregate rainfall during 1883 and 1887 was only 190 inches, and produced two of the best crops ever known.

The largest crop, which was in 1887, was produced by or 71·42 inches, and the worst crop ever known was in 1897, wi an aggregate of 105·47 inches of rainfall.

In conclusion, permit me to point out that there was only small amount of leaf-disease last year, and that this pest duri the last five years has not been nearly as bad as I have kno it to be in many previous years.

I would also desire to draw attention to the fact that t North-East Monsoon of this year is the best that has be experienced for fifteen years.

The finest North-East Monsoon was in 1883, the beginning the period during which good crops occurred.

The next best was in 1887, when the record crop was produc and was followed by a high average crop, which was m remarkable.

Far from not accepting Professor Marshall Ward's repo relative to the life-history of *Hemeleia vastatrix* as final, eve planter of any experience is quite satisfied that all that the m eminent cryptogamist could effect has been done by hi Lasting credit is due to him for his painstaking devotion to c interests.

His last words were to the effect that future investigati must be associated with the experimental investigation of t nutrition of plant cells, a subject which can only be studied in laboratory equipped to the highest possible standard of efficienc It is this investigation which I venture to hope may claim t first attention of experts in the near future.

Professor Marshall Ward also sounded a most excellent wo of warning when he impressed upon us the vital importance paying increased attention to methods and time of pruning a handling, so as to have such shoots on our trees as local e perience may have indicated as best fitted to withstand or ev resist the attacks of the pest. Where many practical plante differ from his opinions is simply in regard to the fact that t experience gained on many thousands of acres of coffee clear demonstrates that attention to the selection of seed and varie of coffee and the class of shade and its regulation; the use suitable manures, together with improved methods for mai taining proper physical condition of the soil, more especially associated with judicious pruning and handling; have one and a most decided tendency to mitigate the effects of the scourg Professor Marshall Ward's most excellent report, while in so places clearly supporting these facts, also contains the bone contention that the entire requirements of the fungoid parasi are a plentiful supply of healthy cell-sap and a little moistu which rightly or wrongly has been interpreted by many mean that nothing can be done to save us from the pest, a that in fact the more we work and the better heart we keep o trees in, the more attractions there will be for the pest.

I have been a planter for 36 years. Our estates have pr duced more crop since we entirely re-planted them with N Nad Coffee than they ever did even in the glorious seasons former years.

At this moment they are looking far finer than I have ev

MILLIE & REDMOND, late P. THOMPSON & CO., *Ootacamund, Engineers and Contractors.*

seen them do before, and consequently I humbly venture to say that I have every right to my cheerfulness.

Let us hope that your kind intention to watch the developments in Mysore may be rendered agreeable by the beneficial results of the present North-East Monsoon aided by a good distribution of rainfall at next blossoming.

I earnestly hope I may not be blamed for most cordially agreeing with you that systematic and persevering work are essential to success in all agricultural undertakings, and for believing that good distribution of rainfall at blossoming and also for the development of the proper class of good-bearing shoots are of vital and paramount importance in connection with all fruit-growing industries.

Barguai, Munzerabad, 18*th October*, 1898. } Graham Anderson.

GENERAL ARTICLES.

LATEST TELEGRAPHIC QUOTATIONS.

	London, 18*th Oct.*
Bar Silver	$27\frac{1}{16}d.$
Bank of England Rate	4 per cent.
Coffee—Market dull.	
Nilgiri average (B) size	65*s.*
Middling Ceylon	103*s.*
Mysore average (B) size	75*s.*
	New York, 18*th Oct.*
Fair Rio Coffee	$6\frac{1}{8}$
Futures—January	5·34
Silver—commercial bars	60

THE DECLINE OF COFFEE DRINKING.

Although some medical authorities assert that coffee is an antiseptic and disinfectant and very effective in cases of typhoid, the general consumption of the berry in England does not increase. It will be seen from a reference to the customs' returns that coffee is still on the decline. This is due no doubt to the ease with which tea can be brewed by comparison, and the tremendous spurt made of late years by the wealthy firms engaged in pushing the sale of tea. Coffee is left to struggle on and live upon its ancient reputation—a reputation, by the way, held in affectionate regard by steady-going coffee drinkers, who resist all efforts to wean them from their beloved beverage.—*H. & C. News.*

THE QUALITY AND THE QUANTITY OF CEYLON TEA LEAF.

In the tea market, transactions have continued much as before, prices ebbing and flowing according to the character of the supplies. A correspondence has been going on exercising the minds of those immediately engaged in Ceylon Tea, as to the alleged deterioration from the time it rose to a staple article. There is no question but that large quantities are sent here that show a falling-off, especially in a season like the present, when such satisfactory prices have been obtainable for the fine China and Indian. The green leaf is capable of being made into a better-finished article, and the fault seems to lie in the manufacture during the early stages, large quantities of tea proving deficient in sap or body. Quality has been sacrificed to quantity.—*L. & C. Express*, Sept. 30th.

GREEN TEA.

A Planter writes:—In one of your back-issues you asked for information as to the amount of manufactured tea obtainable from green leaf. I have found, on an average, the following as the proportional weights. Green leaf 4lb.; after withering 3lb., after rolling 2½lb., after drying 1lb. The amount of moisture, therefore, dissipated after withering is 25 per cent., after rolling 40 per cent. In other words the roll contains 60 per cent. of moisture. But it would certainly seem that more moisture ought to be dissipated in the drying than in the withering and rolling,—doubts on this point can only be settled by direct experiments. Probably it will be found that, on an average, the roll contains $66\frac{2}{3}$ per cent. moisture, and that this is the amount dissipated in the drying process, $33\frac{1}{3}$ per cent. only being dissipated in the withering and rolling process instead of 40 per cent. The percentage will, of course, vary according to the leaf and the state of the weather. It is, therefore, very difficult to arrive at exact figures, but a practically correct average could be obtained.—*Planter.*

A GIGANTIC FLOWER.

The *Planter* says: A correspondent from the Central Provinces writes:—It may be interesting to the readers of the *Planter* to know that there is at the present time a creeper in the "Maharaj Bagh" Gardens of Nagpur, in the Central Provinces, the flower of which is four feet six inches in length, from the extremity of branch to end of flower, which terminates in a pendulous cord-like tail. The girth of the flower measures about nine inches, and in colour is a purplish green. Its shape is that of two bags attached together lengthways of a network appearance inflated at either end of the body and contracted in the centre. The limb is large, and, as before mentioned, the whole terminates in a long tail. The smell of the flower is very offensive and strong, and attracts large numbers of flies which enter the flower, but once inside cannot extricate themselves. The botanical name for the plant is "Aristolochia gigas," and is of the Sturitrauti family of creeping plants. It is a native of Guatemala. Great numbers of people daily visit the gardens to see this extraordinary freak of nature, mostly from curiosity, some to add to their knowledge of the science of botany. It is certainly a rare production of the botanical world, which is sure to be a little more than a nine days wonder.

TEA AND COFFEE SHOPS.

We learn, writes the *Financial News*, that informal conferences have taken place among various people interested in businesses of the class likely to be affected by Sir Thomas Lipton's cost-price refreshment shops scheme, and that as a result, a working arrangement antagonistic to Lipton's is very likely to be arrived at if Sir Thomas Lipton's scheme should come to realisation.

At present, the idea is to follow up the opening of Sir Thomas Lipton's refreshment shops by commencing to sell tea and coffee at, or even considerably under, cost price at the various depôts of the refreshment companies concerned. These run to hundreds in London alone, and it is believed that Lipton's trade would be considerably diminished, by this means. It is stated, however, that some of the larger tea companies have been approached, and have signified their willingness to give every assistance in the development of this scheme, if it should be necessary to carry it as far as the establishment of rival shops to Lipton's. Some of the larger tea companies claim to have a considerably more extensive area of tea lands in Ceylon than are possessed by Liptons, and they are inclined to believe that it might be to their interest to co-operate with the refreshment companies in taking the present opportunity of damaging Lipton's business.

A TEA PRUNING EXPERIMENT AND ITS RESULTS.

Writing under date Roseneath, 4th October, 1898, "J. L. D." sends to the *Ceylon Observer* a paper entitled as above. The *Observer* states that the paper must be regarded as of permanent value in giving a faithful report of actual experience in regard to the pruning of tea grown at a medium elevation and in an old coffee district. It adds:—"Roseneath, the plantation referred to, grew coffee, we suppose, for nearly 40 years before its fields were turned into tea. The property is now to be taken over by the Kandy Municipality to be gradually turned into a forest with quick-growing trees and added to the reservation around the water-supply reservoir for the town. The Manager of Roseneath takes charge of his own tea estate in the Knuckles: but before leaving he has been good enough to place

before us his experience of a system of pruning which some authorities would consider too frequent in its operation if not too severe."

J. L. D's remarks are as follows:—When I last had the pleasure to see you, Mr. Editor, we had a talk about tea pruning. I told you of my experiment here and the results; and now that this property is changing hands—passing to the Kandy Municipal Council—and my connection with it ceasing, it might be well to put on record what has been done, and the outcome so far. For those who do not know the estate I may say that part of it might have been opened fifty years ago; that for the first twenty years there were few or no drains: that it has a poor quartz hungry soil, and but for the liberal and enlightened policy of its proprietors who have always allowed steady manuring, it would long ago have lapsed into thin scrub or weakly managrass. It has been kept alive and going by Kandy rubbish, and now that this savoury fertilizer is to go elsewhere, and the tea now growing is to work out its own destiny unaided, I expect it will be short-lived. The "City Fathers" have taken the property to their bosom—a dignified and hallowed resting place! What I have done in the way of pruning is what I hold will help similarly situated estates, medium elevation 2,400 feet with old coffee land, undistinctive teas, and low yields. There are numerous properties of this kind—"bound to go to the wall" so it is said—and it is to prevent if possible this heart-breaking process, by showing a way to a considerable saving in working, that I send you what has been done here.

I used to prune my tea every 18 months. In 1894 I had come down to 15 months. Since the beginning of 1895 the whole estate has been pruned yearly. The daily averages of leaf gathered per cooly for these years are as follows:—

1894	pruning every	15	months	...	lb. 15·09
1895	do	12	do	...	„ 17·00
1896	do	12	do	...	„ 20·09
1897	do	12	do	...	„ 21·01

This makes cheap working. I may say I went round every 10 days. What was beginning to impress me most was *the steadiness and regularity of the flush*—no big rushes and no lean months. In 1897, the months which were under 20 lb. average were January 18·09 and August 19·09; the two highest were April 22·07; November 22·04.

The pruning was a light pruning costing rather less than R.4 an acre. I had a small gang of experts who did little else. Supplied with decent knives they finished their task by 3 P.M. I found that after pruning I had to tip for the first time in about two months.

The teas made got fair prices, considering the medium plucking and the elevation. Last year, for instance, the average for the *whole* crop sold was 34¾ cents.

I have often been told that I would ruin my tea by the plan I have adopted. It is possible; but who has the experience to speak, and on what other authority are they entitled to speak? Why should 18 months' pruning be considered safe and 12 months' unsafe? It's a thing that has to be tested. How was the man regarded who first advocated and applied the knife vigorously to roses? Is it not an axiom in grape-growing countries that you should never prune your own vine; but get another to do it, that the plant may get the thorough treatment it needs?

Anyhow if the medium properties are "bound to go to the wall," as some of them are being worked at present, might they not go in *on the chance* of surviving the yearly pruning, lesson their cost of production, and give a wider field for generalizing on the merits and effects of quick and light pruning? Better to die with the old pluck at the fore, and ready to grasp at every advantage before the fatal plunge is taken, than doing nothing, or at best a hum-drum following of the leader to possible disaster. I have seen numbers of places where the returns were short—the plucking average too low for anything—and the leaf gathered, bangy abomination most of it—which with an earlier application of the knife would have done ever so much better.

I don't claim all the advantage to the pruning: it produced the leaf, but it had to be plucked and I was blessed with a really hard-working lot of coolies and an exceptionally energetic Conductor to run them. *He* takes a lot of the credit, classes himself in a new order of merit, that of being *not* "a half-past six feller." which I presume stands for up-to-date with us. Doubtless there is also a hidden allusion to the lazy cooly late for muster. The manuring too has played a part, but I generally think of that as only bring up the soil which obtains here, to a fair average elsewhere.

BRAZIL COFFEE.

A SLOW but wholesome change has been going on in this bra of the coffee trade since the early part of the year, says the *Grocer*, prospects for holders are far brighter than they were then. Aft long spell of depression, during which the outlook for the comm sorts of coffee was described by some importers as "deplorabl the market has acquired more stability, the dreary period of c stant "sagging" is believed to have come to an end, and the mon of superabundant supplies and unexampled low prices seem length to have passed, for the present at least. The original cal lations of the entire Brazil crop for 1897-98, ventured upon th years ago, and duly notified in these columns, have proved to remarkably correct, and what at one time appeared to be an ex gerated estimate, viz., about 10,000,000 bags, has been actu realised. That this is so is shown by the fact that, at the term tion of the season on June 30 last, the aggregate shipment Brazil coffee to Europe, the United States, and elsewhere, amoun to 10,569,000 bags, against 8,680,000 bags in 1896-97 and o 5,489,000 bags in the twelve months ended in 1895-96. Compar the separate imports of Rio and Santos coffee from the Brazils 1897-98 with those in the previous season, we find that 4,516, bags consisted of the former description, as against 3,579,000 b in 1896-97; and also that 6,053,000 bags were composed of the lat kind, in contrast with 5,101,000 bags shipped from thence dur the year before.

The past season's production of Brazil coffee has been unpre dented, and it is said that the crops for the current year up to June July, 1899, promise to be equally large and abundant, so that i not unreasonable to suppose that the two crops, reckoned togeth for 1897-98 and 1898-99 will reach the prodigious total of 20,000, bags. The bare idea of such a possibility is enough to induce caut in the rashest of speculators, and in some quarters considera doubt and uncertainty exist as to whether growers and shippers Brazil coffee, after all their gloomy experience in recent years, h seen the worst of their commercial troubles. In their circular of 26th ult., Messrs. W. H. Crossmann & Brothers, of New Yo state that "many members of the coffee trade are feeling nervous o the price, but coffee does not change base quickly. Low pri ruled from 1882 to 1886, and, following the heavy increase of pla ing in 1891, high prices existed up to 1896. It takes about f years to effect material increase or decrease in the crops. Pri below the ten cent level have ruled since January, 1897, and on basis of supply and demand we think present values are likely continue for years to come, and perhaps go lower in the immedi future."

At the moment, however, the general opinion of other autho ties is divided between "landed" parcels and "futures," one cl of holders being strongly in favour of "spot" coffee, wh another is as confident in maintaining that the article "on pap cannot go lower in price than it has done already. That there some warranty for this belief is found in the altered circumstan of the case. In two main particulars there is a pause or reversal the previous order of things. First, the European stocks (of kinds of coffee), which had been accumulating with such surprisi persistency, and which at the beginning of July and August reach about 208,000 tons, in opposition to 145,000 tons and 132,000 to respectively, in 1897, have since remained almost stationary; and is surmised that, as the receipts of coffee at the Brazil shipping po exhibit a decided falling off in comparison with those up to Septem last, the excess of stock in Europe, which has for so long been a p minent and unfavourable feature in the statistics of the berry, w from this time gradually wear away. It is likewise important to obse that there has been a material rise in prices of "futures" from lowest point in November last, when good average Santos, delivery in September-December, 1898, was placed in London at 2 to 28*s.* per cwt.; and as the latest rates are nearer 31*s.* to 33*s.* contracts running up to next autumn, it is plain that there is a d tinct recovery in the state of the coffee market from what it was 1897. Fluctuations in value may, therefore, be expected to ke within narrower limits, and, it being impossible for prices to fall the same alarming extent that they did a twelvemonth back, t trade have little need to fear the laying in of moderate stocks.

TEA COMPANIES.

Alliance Tea of Ceylon.—An interim dividend of 3 per cent. to June 30th last is payable on September 30th.

Highland Tea of Ceylon.—Interim dividend at the rate of 5 per cent. per annum for the half-year ended June 30th last.

The Pitakande Tea Company of Ceylon, Limited.—This Company has declared an interim dividend of nine per cent.

Duckwari (Ceylon) Tea Plantation Company, Limited.—The balance of profit and loss account for the year ending June 30th, 1898, after writing off ten per cent. depreciation on value of machinery and buildings, is £1,841 14*s.* 11*d.*, which the Directors propose should be applied as follows :—(1) In payment of seven per cent. dividend on preference shares, £840 ; (2) In payment of five per cent. dividend on ordinary shares, £400—£1,240; leaving £601 14*s.* 11*d.* to be carried forward to next year. The returns of crop have been 229,670lb. tea and 12,655lb. cardamoms. For next season the yield is estimated at 250,000lb. tea and 10,000lb. cardamoms. The Directors in furtherance of their policy of high cultivation have expended the sum of £471 7*s.* 10*d.* in manuring during the year. A general survey of the Company's Estates has been made, and their boundaries clearly defined, The total acreage is 1,698 acres 3 roods 27 poles, of which 921 acres 17 poles are under cultivation.

EXCHANGE AND FOOD PRICES.

AFTER writing at length about Food Prices in India, the *Madras Mail* remarks as follows :—

"In Bengal also, in the case of rice, we find on reference to the recorded prices that the large average increase in price shown for the period of 1891 to 1895 is due to a rise in particular parts of the province—in Orissa, in the Northern, the Eastern and to some extent in the Central Districts,—and may be attributed to the quickening of trade, and the progress of the general levelling of prices, rather than to any other causes. This general result seems to be evident in all provinces to a greater or less degree, and when taken in conjunction with the evidence which we have of the influence of seasonal calamities on prices, it seems doubtful whether there has been more than the very slightest general rise due to other causes. The Bombay figures, and those we quoted in a previous article for Madras, appear to support this conclusion.

"This conclusion will to many appear to be contrary to their own experience. It is, however, founded upon data in the preparation of which no pains have been spared, and which have not been prepared with a particular theory in view."

Needless to say, if this conclusion is correct, it is clear that the fall in the value of the rupee has *not* brought about an appreciation of prices of food-grain in India. A very important point for advocates of a natural currency.

RAMIE.

Do any of our readers take an interest in this fibre? If so, we shall be glad to publish any important papers concerning it that may come to hand. Meanwhile we may state that the *Kew Bulletin*, after going into the present position of the Ramie industry, sums up as follows :—

Few practical problems have consumed so much time and energy as the attempt to bring China grass and Ramie into use for manufacturing purposes. Notwithstanding all the expenditure of mechanical skill and inventive ability, the conclusion cannot be evaded that we are still as far off as ever from being able to place upon the market a finished product which will effectually compete with silk, flax, and the better qualities of cotton.

The plants can be grown with the greatest ease. But when the problem of treatment is solved, the supply of the raw material will be limited to warm countries. The cultivation of China grass in temperate regions will never be able to compete successfully with that of Ramie (or perhaps of China grass) in the tropics. It is known that when ribbons can be produced sufficiently cheaply, these can be degummed and turned into filasse at a small cost. The whole question then still turns, as in 1888, on the production of ribbons. We are still waiting for a decorticator which will not merely turn out ribbons fit for further manufacturing processes—that has been accomplished—but will turn out, say, half a ton a day at a small cost. Till this has been found, the planter cannot profitably deal with his crop, and the degumming processes, now almost entirely dependent on hand-cleaned fibre from China, are paralysed for want of a supply which will allow the finished product to compete with other fibres.

The ribbons must be susceptible of being delivered to the degumming factories at a cost not exceeding £7 to £9 per ton. This would pay the planter if he had a decorticator which would leave a profit. At present he cannot produce ribbons under £12 to £15 a ton.

Then the degumming processes should turn out filasse at a total cost of £36 to £40 per ton. At this price the demand would be considerable, and a large and prosperous industry would result. To put the position in other words, filasse must be put upon the market at about 4*d.* a lb. To use the words of one of the speakers in the discussion at the Society of Arts, "unless it could be brought down to something like the price of cotton or flax, it was impossible to make any profit out of it."

INDIA'S CURRENCY DIFFICULTIES.

A PROPOSED WAY OUT OF THEM.

THE *Pioneer* writes :—In our first article on the evidence given before the Currency Commission, published on the 2nd October, we remarked: "It is a significant result of the publication of the evidence before the Currency Commission that monometallists like Sir Frank Forbes Adam, advocates of a gold standard without a gold currency like Mr. Allan Arthur, and bimetallists represented by the Bimetallic League, are now converging towards a common ground under the influence of a perception that a compromise, which would probably take the form of an agreement to open the Mints of the three countries (France, India and the United States) at a ratio of 1 to 22 is the surest and least expensive remedy for the existing difficulties." "We are quite aware," we added, "that the Government of India have definitely declared that on no conditions shall the policy of 1893 be revoked, but this declaration is susceptible of revision, and even if it stands the weight of evidence before the Currency Commission may be against it." Our London correspondent's telegram to-day shows that the movement thus foreshadowed and described is rapidly taking a definite shape. With a strong pull, a long pull and a pull altogether, the blunder committed by the Government of India last year in rejecting the overtures of France and the United States may yet be retrieved. The particular passage in Sir Frank Forbes Adam's evidence to which reference is made is as follows: "I have already said that the proposal to arrive by gradation at open Mints has something to be said for it. I have also had it suggested to me that if it were possible to approach America, leaving England entirely out of it, and propose that they should open their Mints at a low ratio (the equivalent of 42*d.*) on condition that India should open her Mints, it would be a useful lesson, and it could not be any disadvantage to England and would benefit India. Q.—You say it would be a useful lesson? A.—Yes: We should see how America would get on with her experiment in bimetallism. I have heard that suggested several times, and if practicable, it certainly is deserving of consideration. Whether there is any practicability in it I do not know. It does not preclude what, to my mind, is the most important thing, and that is, arriving by some stage or other at the opening of the Mints for the free coinage of silver. In fact I believe it would get over many difficulties, and might be a final solution." Lord Rothschild again in one place (answer 7613) distinctly says: "I consider it a mistake on the part of the Indian Government discarding in the way in which it has done the proposals made by America and France last year." Finally, regarding the Eastern merchants to whom reference is made in our London telegram, we have excellent authority for stating that a strong current of commercial opinion in India is beginning to flow in this direction. In fact without such a compromise a large section of the mercantile community in India, represented chiefly by the planting interest—not perhaps of such imperial importance as its advocates sometimes assume, but still of very great importance—must remain permanently hostile to the Government policy.

ARTIFICIAL FECUNDATION.

The following convenient summary is from an article in the *Planter* :—

Hybridism and Colour.—The colour of stems, leaves, flowers and fruit is altered by hybridising and cross-breeding, but it is in the flower that these changes are most noticeable, since the colours are more pure and variable in the floral envelopes than elsewhere. But there is no occasion to further notice this subject in this place, although of interest, it does not directly concern us.

Modes in which Artificial Fecundation is possible.—M. Lecoq mentions the following modes in which artificial fecundation may be conducted, and a series of carefully recorded experiments carried out on different individuals of the same pure species, as follows, would be very valuable from all points of view : –

First degree.—The flower is fecundated with its own pollen—that is, pollen from the same flower in which the stigma is to be fertilised.

Second degree.—The flower is fertilised with the pollen from another flower on the same spike or inflorescence.

Third degree.—The flower is fertilised like the last, but the pollen is taken from a flower on another spike or panicle on the same plant.

Fourth degree.—The flower is fertilised by pollen from the same species, but taken from a separate individual.

Fifth degree.—The female flower is fertilised by a male flower taken from the same branch or off the same inflorescence.

Sixth degree.—The female flower is fecundated by a male flower taken from a different inflorescence borne by the same plant.

Seventh degree.—The female flower is fertilised by the pollen of a male flower of the same species, but from a different individual.

Eighth degree.—The flower hermaphrodite or unisexual is fecundated with pollen of another variety of the same species.

Ninth degree.—The flower hermaphrodite or unisexual is fertilised by pollen of a distinct species.

Tenth degree.—The flower unisexual or hermaphrodite of a hybrid is fecundated with pollen of another hybrid variety.

Eleventh degree.—The flower unisexual or hermaphrodite of a species in a pure state is fertilised with pollen from a cultural variety of the same species, or *vice versâ*.

Twelfth degree.—The flower hermaphrodite or nuisexual of a pure species is fertilised with pollen from a hybrid variety of another species or *vice versâ*.

Thirteenth degree.—The flower of a pure species is fertilised with pollen from a species belonging to an allied genus.

Fourteenth degree.—The flower of a monœcious or diœcious plant is fertilised by pollen from the hermaphrodite flowers of an allied genus or species, and *vice versâ*.

There are many ways in which new forms of plant life may be originated, or old forms modified. For the sake of convenience these may be here tabulated together as follows :—

Bigeners or *Bigeneric Hybrids.*—These plants are obtained by crossing two pure species belonging to different genera.

Bigeneric Half-breeds are plants obtainable crossing varieties of two species belonging to different genera.

Hybrids or Mules are the products of two species. The word "mule" is frequently used as synonymous for hybrid, and originated at the time when hybrid plants (like hybrid animals) were thought to be universally sterile. It being now known that but a small proportion of hybrid plants are absolutely sterile even in the first generation, the word "hybrid" should be exclusively used for the fertile progeny of two species, and the word "mule" adopted in like manner for such as are sterile.

Half-breeds or *Mongrels* are the product of two varieties of one species.

Seminal sports are varieties which not unfrequently result from seeds which have not been fertilised by foreign pollen ; indeed, seminal variation, natural selectiou, or "survival of the fittest" is nature's way of adapting plants to different localities and conditions. Many garden plants have been improved largely by carefully selecting such seminal forms as come up to our assured ideas of perfection, or the fashion of the time.

Bud sports are variations originating from a "bud, tubercle, or other organ of a single individual by division or extxnsion." De Candolle says :—"Sports must originate from certain causes as an ancestor of a different form, an actual or anterior influence of climate, etc., but the obscurity of the causes is precisely what justified the use of the word."

TEA, &c., IN CEYLON.

HERE says the *Ceylon Observer*, is the sum total of the value of the products of what is usually regarded as the "planting enterprise" of Ceylon, exported in 1897 :—

	Rs.
Tea (to U.K., Australia, Continent of Europe, America, &c.) 114,466,318 lb. valued at	46,931,190
Cinchona Bark (to U.K., Italy, France, U.S. of America, and Japan) 591,136 lb.	32,512
Cacao (to U.K., France, U. States, &c.) 35,121 cwt. ...	1,299,485
Cardamoms to U.K., India, U. States, &c.) 64 pkgs. and 551,463½ lb.	1,013,962
Total Rs. ...	49,277,149

Coffee exports alone in 1875 were valued at 45 million of rupees Low as Cinchona bark has fallen in price, its export in quantity still continues to be considerable. In 1882 the total value of the new products above given as exported was only Rs.4,529,000; but Cinchona bark alone amounting to 4,656,000 lb. was valued at Rs.3,850,000 in that year! Although the quantity in 1897 was over 590,000 lb., the value has fallen to little more than Rs.32,500 in view of the cheapening of quinine mainly through the large exports from Ceylon. The main fact to be deduced from our figures is that the plantation exports of the Colony, mainly appertaining to Europeans are still, at least, double in value those chiefly passing through native hands in the low country.

Coffee (plantation, native, Liberian, &c.) alone remains to be dealt with separately in our review of the Staple Exports for 1897 and its comparative importance only as a very minor secondary product, in our list, after the miserable export of last year, is proclaimed by the following figures :—

	Rs.
Coffee. Plantation (to U.K., Australia chiefly) 17,341 cwt., valued at	1,404,640
Coffee, Native (to India, France, Australia, Germany, &c.) 782 cwt.	48,392
Coffee Liberian (to U.K., Germany and Australia) 481 cwt. ...	19,213
Total ... 18,604 cwt. = Rs.	1,472,245
Against, Tea and other New Products, as above	49,277,149
Total ...	50,749,394

This total may be contrasted with the aggregate of the Export Trade chiefly in native hands:—Palms, oils cinnamon, tobacco, plumbago, &c., as detailed the other day:—Rs.23,252,730. In both cases, however, the values are under-rated.

It will thus be seen that the Ceylon Export Trade in tea, coffee and allied new products in 1897 was far more valuable than that appertaining to low country palms, to incnamon, tobacco, plumbago, &c. But this does not mean that we have here the ratio representing the importance respectively of these industries to the people of Ceylon. It must be remembered that a very large—if not the greater—portion of the produce of the cocoanut and other palms, as well as a great deal of the tobacco grown, is consumed in the island ; whereas all but an insignificant proportion of the tea, coffee, and cacao produced is exported. The value of the annual produce of the cocoanut palm alone in Ceylon—including arrack and toddy—is estimated to be not far short of that now attained by tea, or approximately to 40 million of rupees, with this difference, that while half of the former (produce of the coco-palm) is consumed by the three million of people locally, all but a fraction of the latter (tea) was exported from the island.

The coffee crop at the time of its maximum prosperity approached in value to 50 million of rupees, and it will be seen that 114 million lb. of tea approached that value in 1897 ; while the export in 1896 was valued at over 51 million of rupees. In 1897 coffee made only about one forty-fourth in value of the entire Export Trade in Ceylon produce, which equalled nearly 76 million rupees. How different from 1875, when out of a total Export Trade in Ceylon produce valued at 51¾ million of rupees, coffee alone contributed over 45 million of rupees!

Here again, we see how new and old products, apart from coffee, have risen in importance. In 1875 the balance apart from coffee was only 7 million of rupees. In 1897 the balance was 74½ million of which the native Exports specified, made up 23¼, and tea with other "new products" 50¾ million of rupees.

TEA NOTES FROM THE EAST.

We referred some time ago, says the *Grocer*, to the decay of the tea trade in what was once one of the chief centres of the trade in China—Amoy. The process, according to latest Consular roports, still continues. Amoy exported in 1877 over 12 million pounds of tea; in 1896 the export was less than 4½ million pounds, and last year it fell to 1,616,933 pounds, and the Consul believes that soon tea will cease to be a product of the district. There is little doubt that the extinction of the industry is due to the ruinous system of taxation. The heavily taxed Amoy black tea cannot compete with the untaxed Indian and Ceylon teas, while the dilatory and vexatious modes of collecting the *likin* lead to much of the leaf becoming damaged during transit. In the Amoy district tea gardens are to be seen which have run to waste, the comfortable homesteads of the once prosperous tea-growers being in ruins. Similarly at Canton. The tea exported from Canton is known as scented caper, and London is the only market. The export decreases every year. In 1893 it amounted to 6,000,000lb. Last year it was but 4,750,000lb. Scented capers are used solely for blending. Formerly this blending was done by numerous retailers throughout England, now it is in the hands of two or three large blenders, and should they decide to exclude scented teas from their blends, the export from Canton would entirely cease. The decrease, the Consul says, is not due to a deterioration in quality; in fact, during the past three years these teas have been rather purer, but they are being pushed out by the Indian and Ceylon growths. These latter pay no export duty, whereas the Canton duties and taxes amount to as much as 35 per cent. of the cost price. The Consul at Shanghai thinks the Chinese Government have awakened at last to the fact that the tea trade is rapidly slipping away from their country, and there are signs that it will be willing to make some concessions to encourage measures for the improvement of the tea produced. These measures will certainly not be taken too soon. In the spring of last year the United States Government passed a Bill to "shut out" spurious tea, and fixed standards of "purity, quality, and fitness for consumption" ("quality" was not in the first draft of the Bill). This was aimed at the Pingsuey production, which had become a disgrace to the trade, and it would have been beneficial if it had been carried into effect properly. It is alleged, however, that men were appointed as inspectors who were not experts in tea, and the working of the Bill became oppressive and unjust. It called forth a protest from native teamen and from the Shanghai General Chamber of Commerce. Owing to the above action of the United States Government a large stock of Pingsuey tea remained—and probably still remains—unsold in native hands. The Consul says it is unsuited for the London market. Last year's figures show that when prices rise a little above the bare cost of production there is a wonderful elasticity in Chinese supplies. But so long as the quality remains unsuitable, the demand is hardly likely to increase. The experimental use of a machine roller at Wenchow last season is said to have proved beyond doubt that the most ordinary China tea is capable of astonishing improvements if treated by modern methods. Whenchow tea made by the old native process is of the most inferior description, but, by being carefully made and machine-rolled, a very fair drinkable tea resulted. A company under the auspices of the Commissioner of Customs at Hankow, Mr. R. B. Moorhead, has been formed to experiment in this line in the Hupeh tea districts, the safety of men and machines being guaranteed by Imperial edict. A somewhat similar company is already working in Foochow, and the Consul understands it has had some measure of success, and is enlarging its operations. A feature in last year's China trade was the change of route for teas intended for the Central Asian market. Some 4,000,000 to 5,000,000 pounds of a green tea known as Hyson used formerly to go to Bombay, where it was sold to merchants trading with Bokhara, Merv, &c. This trade is now going *viâ* Batoum, and the central market will probably be Samarkand instead of Bokkhara. Also an increasing quantity of black brick tea is being shipped to North Siberia *viâ* London, where it is transhipped by Captain Wiggins' steamers. One of the largest shipments was lost, but the prices realised by teas which arrived at their destination appear to have been very satisfactory, and it is thought the trade by this route will increase. In Formosa, to prevent the adulteration of Formosa oolongs by mixture with old local leaf or China teas, foreign merchants co-operated with the Chinese Tea Guild under the auspices of the Japanese authorities. A committee, consisting of three foreign and four Chinese merchants, was appointed to deal with the questions of adulteration of tea, having the power to impose fines and confiscate adulterated teas. Formosa exports tea to the extent of some 20,000,000lb. annually, with a value varying from 590,000. to 650,000l., a figure exceeding the value of the total tea export from Japan proper in 1896. And as the Japanese endeavour to facilitate the export trade, the figures will doubtless continue to show progress.

"ELECTRIC NITRATE."

Apropos of the remarks in our leading columns, we quote below an article from the *Madras Times* on the subject of Professor Crookes' remarks concerning artificial nitrates and an anonymous farming expert's criticism thereon. If there is any planter who sides with the expert, we shall be very glad to have his views, for the subject of artificial manures is one that will bear a good deal more discussion than it has yet been subjected to by the planting communities of India. The following is the article referred to:—

A PROFESSOR CHALLENGED.

A practical scientist like Edison need fear no criticism. He theorises, to be sure, and theorises deeply; but, as soon as he has seen his way, he falls to work and tries whether his practice will fall in with his theory; and when he finds that it does, he astonishes the world with a new invention. There's no room for criticism, no room for any scientific Thomas to doubt. "Edison has invented a light that shines by electricity!"—but when he had done it he had no need to theorise about it on a platform or in a magazine; he had simply to say "come and see." "Edison has invented a talking machine!"—and Edison had no need to draw diagrams to show how it worked; he had simply to say "come and hear." "Edison has invented a machine for getting iron out of the ground by magnetism!"—and Edison had no need to have the matter discussed in the newspapers; he has simply to point to the work that his machinery is already about.

Very different, however, are the theories propounded by scientists on scientific platforms, whose theories are, at least for the time being, in the air. Our readers will remember for instance that the basis of the great theory propounded by Professor Crookes at the late meeting of the British Association of Science is literally and actually "in the air." The Professor's great theory was that an abundance of nitrogen was necessary for the rich development of the world's agriculture for the supply of the world's increasing needs; and that this abundance of nitrogen could be supplied from the store of nitrogen in the air; or, in other words, that the prime element of manure could be manufactured by a simple process in the chemist's laboratory. The possibility of getting the abundance of nitrogen has not been denied; but an agricultural expert has come forward and has confronted the Professor with the statement that the Professor knows nothing about practical agriculture, and that his theory is untrue that agriculture would be bettered by more nitrogen. The agricultural expert in question, who is the editor of an agricultural journal, says that the Professor may or may not be a good spiritualist, and may be a great chemist; but he is certainly a bad farmer, and has taken in hand a subject of which he has no practical knowledge whatever. The expert declares that the cry of "more nitrogen" would, if listened to, tend to produce "most disastrous results;" for, as a matter of fact, there is, if anything, too much nitrogen in the soil already, and that if you enter nine orchards out of ten in the United Kingdom, you will see the disastrous effects produced by the excessive use of nitrogen. The trees, he says, are forced into a rank, unmanageable growth, and the chief crops grown consists of wood and leaves. He maintains that "good culture" is the true key for the world's food; and that, with properly alternated crops, the soil would never be devitalised, and—more than this—that if farmers could decrease the supply of nitrogen furnished in foul, ammoniated stable manure, instead of increasing it, the crop would yield all the more. Finally, the expert offers to put his remarks to a practical test. The Professor and he shall each be assigned a half-acre of ordinary land adjoining each other. The Professor shall have all his appliances, and shall be compelled to use nitrogen freely; and the expert, depending on culture alone, guarantees that he will raise a much heavier crop of wheat than the Professor.

Such a competition might be interesting; but the expert has apparently been confining his ideas closely to agriculture as carried out in Great Britain. It is possible, to be sure, that the arable soil in the United Kingdom is as rich as need be; but we may note that the Professor had under consideration the development of the corn supply of the world, and not of Great Britain alone. It is easily seen that Professor Crookes was thinking not only of the well-watered and richly productive corn-fields of Great Britain, but also of the intractable corn-fields of India in which the Indian ryot, wrestling by night and by day with the unmanured soil, brings out with difficulty a scanty crop as the reward of his pains. The Professor might safely, we should fancy, accept the expert's challenge, claiming, as his right, the choice of the place where the half-acres are to be, and selecting an Indian tract for the trial. The Professor should have one half acre, and be free to put his nitrogen on the ground; the expert should have a half-acre close by, and should be kept to the part of his bargain in which he says:—"We on our part only having a spade and no nitrogen in any shape or form outside what naturally exists in the air and soil. "The expert might go in for all the good culture that he knows; but we fancy that he would come off second best; and, by the way, that after his efforts with his spade, he would be able to testify, in his next editorial, that the Indian ryot is indeed one who toils in the field.

HOW TO MAKE A TEA GARDEN PAY.

"H. C." writes to the *Pioneer* as follows:—

I am afraid "SIROCCO" in your issue of the 25th September is getting a trifle too technical for the average *Pioneer* peruser, and I hesitate to accept his gage of battle, feeling that what I write must be caviare to the general. The subject of plucking tea leaf is one nobody can hope to make fascinating, but if you will permit me I will endeavour to be brief. "SIROCCO" is on the right road to make a tea garden struggle through the present crisis. But his is not an undiscovered path. His theory of plucking is sound, but it is not novel. I began myself in 1894 the system he advocates, and I am now seriously thinking of leaving it behind, as unsuitable to the exigencies of the times. His insistence on going round the bushes once in every five days is marred by his exclusion of Sundays. Tea leaf grows on a Sunday as well as on a week day, and in consequence "SIROCCO's" plan works out into going round the garden once every $5\frac{3}{4}$ days. That is too slow for China *jat* tea, and altogether unsuitable for Assam hybrid *jat* tea. Being a heathen I always work on Sundays, and from the 1st June to 12th September this year my gangs never cease plucking a single day. During that period I went round my China *jat* area 19 times, or once every $5\frac{1}{2}$ days, and round my Assam hybrid *jat* area 28 times, or once every $3\frac{2}{3}$rd days. I exclude the period before 1st June, because drought shut us up for 13 days. On the 12th September a local holiday made it imperative to suspend plucking for five days: from the 18th to the 30th I went round the China thrice and the Assam hybrid four times. I quote these dry facts as the best practical answer to "SIROCCO's" theory. My experience of this system is that in my district, in this season (market and exchange) the China plant will not pay; and the Assam hybrid plant (plucked rather finer) will only yield a profit of about $\frac{3}{4}$ anna per pound. My plucking off China was rigidly two leaves and the bud; and off Assam hyrid about a third finer, that is half the leaf was only one leaf and the bud. The great question now is whether or not to cut the second leaf altogether, as is being done, I am informed, by one or two gardens in Assam that habitually top the market with their teas of Assam indigenous. Assam hybrid will, I believe, pay better with one leaf and the bud than with two. China I am very doubtful about. I believe the loss of crop by dropping the second leaf would not be compensated for by the increase in price. China is the rottenest stuff in the world, and I don't believe Confucius himself could make a decent beverage out of it, pluck it how he would. I do not know what district "SIROCCO" works in; but when he talks of cropping from February to December, say, ten months, I have to take a back seat, for I never get more than seven months, and last year and this my cropping season was and will be completed in $6\frac{1}{2}$ months. But since "SIROCCO" has found salvation, it would be interesting to have a few more details. He has earned the gratitude of a great many planters by putting a really sensible system before them; although I think he is wr in saying that. Prejudice is the collective experience of for days. Here I distinctly join issue with him. Prejudice is in belief just the opposite; to wit the want of experience. To bor horse racing language it is by "stupidity" out of "taken granted." But this is neither here nor there. What would be re interesting is to hear from "SIROCCO" (1) how much his tea avera in the market. (2) What is his outturn per acre. (3) What is profit per acre. Any planter can work out the other details for h self—excepting of course what the middlemen get out of tea. I lay special stress upon the profit per *acre;* it is the only t criterion. Dividends are delusive things. For instance I have, my sins, to pay a dividend on a capital of Rs.1,080 per acre. Look into the pages of *Capital* I see one favoured garden which is c capitalised at Rs.147 per acre. A dividend of $1\frac{1}{2}$ per cent. on concern would work out 10 per cent. on the concern I have my e on. Therefore let us stick to *profit per acre* and we shall kn where we are. And not to ask for more than am willing to g here are my figures:—

	Actual, 1897.	Estima 1898.
Average value tea at Calcutta ...	$6\frac{1}{2}$ as. lb.	$5\frac{1}{2}$ as.
Outturn per acre	428 lb.	410 l
Profit per acre	Rs.37-1-0	Rs.16-1

I don't call Rs.16-13-0 profit per acre "making a tea garden pa In a risky investment like tea, Rs.30 per acre at least is required gain that distinction. My estimated deficit this year as compa with last is Rs.20-4-0 per acre. I apportion and debit it as follows

	RS.	A.	P.
To the Government of India account currency policy...	10	0	0
To the Clerk of the Weather account, drought ...	3	0	0
To the middleman account excessive charges ...	7	4	0

And there you are!

QUININE IN JAVA.

WE revert to this subject in order to quote a report from United States Consul at Batavia, which certainly hold out a g deal of encouragement to Cinchona-planters in Java—*and* elsewh Mr. Everett, who is not quite accurate in saying that the act manufacture of sulphate of quinine in Java has only just beg reports as follows under date June 17th, 1898:—

Although for some years Java has been the principal country producing cinchona bark, yet the actual manufacture of sulphat quinine here has only just begun; it nevertheless, I think, deser a passing notice.

My attention was first called to the matter by an invoice be brought to me on January 18, to be certified for a shipment to United States, of 10,000 ounces of sulphate of quinine. This is first shipment on record and marks the beginning of a new, an hope, very profitable era in the trade relations between Java the United States.

Since then there have been other shipments, and up to the pres date there have been shipped, or rather invoiced for shipment, the United States 48,300 ounces of sulphate of quinine, valued $11,395.55; and I have every belief that more will follow.

There is at present only one factory for working the cinch bark in Java, and it has been running a very short time; but, spite of the drawbacks, its owners are full of energy, and the succ of the enterprise is possible.

Just now things look especially bright, as the war has resu in the rise in quinine quotations. Quinine from this factory (Bar engsche Kinine-fabrik), which in the latter part of April was at $ per unit, had risen by the middle of May to $7.54.

I think I can best describe the industry, its history and its p pects by enclosing a letter written by Mr. F. W. Sijthoff, the mana of the factory above-mentioned, who has been very courteous has offered me every facility for acquiring information. He descri matters better and more graphically than I could.

As regards the cultivation of the cinchona bark, the result of Government plantations here does not bear out the common opin that commercial ventures are better managed by private enterpr

An official report just published shows that the Government in 1896 cleared a profit of over $38,500 from its cinchona estates, while the same year was, as a rule, a very poor one for planters, owing, Mr. Sijthoff says, to the manipulations of a particularly unscrupulous European trust.

I cannot conceive of a better investment than the planting of cinchona in Java. The shortage in production in a few years will be very large, and prices will take a big jump. Concessions of land are not hard to get here if one is on the spot, and the climate of the interior of Java is as perfect as that of the coast cities is bad.

EXTRACTS FROM THE LETTER OF MR. SIJTHOFF TO MR. EVERETT.

I shall gladly give you the information requested. At first it was claimed that no quinine could be made in the tropics, and that, even in case we could make quinine, we could never sell it, because the quinine trade was entirely in the hands of the manufacturers in Europe.

The first year was for us one of adversity and disappointment; now we have not only succeeded in delivering a good product, but can sell it to advantage, the demand increasing constantly.

Our factory is now producing 90 to 100 kilograms (198 to 220 pounds) of quinine a day, which is sent to America, England, Amsterdam, Straits Settlements, Hongkong, Japan and Australia.

For a few years after cinchona plantations were laid out in Java, fabulous profits were made. Ceylon transformed all its bad coffee enterprises into cinchona plantations with the result that the production kept pace with the consumption, and prices declined. When the Ceylon plantations were seven to nine years old, it appeared that the soil and climate of that island were not good for the tree. After 1894, Ceylon was entirely exhausted, and the production fell off very sharply. A Trust that had been formed in the meantime, and that had already fixed a price for manufactured quinine, fixed also the price of cinchona bark. Thus quinine planters, although coming to the market with a moderate crop, and one not satisfying the consumption, always got inferior prices for their product.

Our factory buys no bark and carries on no trade in it, still less in quinine. We work the bark for a commission of 7 florins per kilogram ($2.81 per 2.2046 pounds) of quinine, the actual proceeds of the finished product going to the planter.

Just now the production is considerably short, so that the deficiency is made up from the stock of quinine on hand, and bark of very bad quality, which has already been lying piled up for twenty years. In another two or three years these stocks will be entirely used up, and the world will have to face a shortage of quinine.

I am firmly and sincerely convinced that now is the time to begin a new Quinine Enterprise which, with the benefit of a long experience, will be a model estate and yield in a few years great profits.

Mr. England, in the *Chemist and Druggist*, says that North America in 1897 imported in cinchona bark and quinine 10,000,000 ounces of sulphate of quinine. The rest of the world needs some also; let us say 300,000 kilograms (661,380 pounds), which makes the total 585,000 kilograms (1,289,691 pounds). The world's output is only 385,000 kilograms (788,771 pounds), of which Java produces about three-fourths.

When Africa and China are opened up, the consumption will naturally increase, especially in the latter country with its 460,000,000 inhabitants.

Java has attained its highest crop yield, and it will be some years before we can expect any satisfactory enterprise to be undertaken.

The quinine made by American houses comes from bark which is first sent from Java to Amsterdam for sale and then shipped over to the United States. We certainly could produce satisfactory raw quinine for use in America, which would make that country entirely independent of Europe. The transportation of the crude quinine would be simpler and less costly.—*Drug Reporter of New York.*

DISTRICT ASSOCIATIONS.

NELLIAMPATHY.

Proceedings of a Meeting held at Victoria Bungalow, Wednesday, September 28th, 1898.

Present.—Messrs. Barnes, Denny, Everington, Foster, C. Hall, Watts, Welchman and J. C. Abbott, *Hon. Secretary*. Mr. Watts in the Chair.

Read Proceedings of last meeting.

Quit Rents.—Read letters from the Secretary to the Dewan stating that the quit-rent on some estates had not been paid at the proper time, and requesting the Honorary Secretary to inform the planters in this district that if quit-rents were not paid with greater punctuality, the Government would be obliged to take steps to enforce due payment.

Roads.—Read letter to the Chief Engineer calling his attention to the condition of the bridge on Poothoondoo Estate, and his reply stating that this would be attended to. Mr. Hall informed the meeting that this work was now being done. Mr. Barnes reported that the road through Karapara Estate was in very bad condition, and the Honorary Secretary was requested to address the Chief Engineer about this, and ask that all the roads should be put in good condition before crop.

Hospital.—Read letter from Messrs. Burnett & Son stating that the proprietors of Poothapara Estate had kindly consented to give two acres or thereabouts as a site for the hospital building, but stipulated that the land should be properly marked out either by a ditch and bank or stone wall.

Read letter from the Chief Engineer stating that nothing had yet been decided about the hospital building.

Read letter to the Dewan from the Honorary Secretary pointing out how necessary it was that the hospital buildings should be commenced at once, as it would be difficult or impossible to get the necessary labour during the hot weather months, and that if there was any further delay, the work might have to stand over for another year.

In view of the possibility of plague being brought to this district, the Honorary Secretary was requested to write to the Medical Officer to the Government and ask him to urge on the Government the necessity for some medical provision being made at once.

Mr. Everington stated that a site for a contagious diseases shed was being prepared close to the Wallenghy Travellers' Bungalow, and it was resolved that the Association should protest against this, and ask that a more isolated position be selected.

Agricultural Chemist.—Read correspondence between the Secretary, U.P.A.S.I., and the Resident of Mysore.

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[w. 15-10-98—14-1-99.]

Bangalore Meeting.—Mr. Watts proposed a vote of thanks to Mr. Abbott for his attendance at this meeting. *Carried unanimously.*

Honorary Secretary.—Mr. Abbott was re-elected as Honorary Secretary. A vote of thanks to the Chair terminated proceedings.

(Signed) P. W. E. WATTS,
Chairman.

(Signed) J. C. ABBOTT,
Honorary Secretary.

SHEVAROYS.

PROCEEDINGS of the Monthly Committee Meeting of the Shevaroy Planters' Association held in the Victoria Rooms, Yercaud, on Monday, the 3rd October, 1898, at 11 A.M.

PRESENT:—Rev. J. M. Kempf, Messrs. C. Dickins, C. G. Lechler (*Chairman*), C. Rahm, T. H. Short, and R. Gompertz (*Hony. Secy.*)

1. *Resolved* that the Journal of the Royal Agricultural Society be taken in for one year, and that a copy of the Blue book on the Currency Committee be purchased.

2. *Resolved* that the list of estates required for the Lawrence Asylum Press be laid before the General Meeting to be held presently, when each Member can revise particulars of his own estate.

3. *Read* letter from Mr. C. Dickins regarding applications for land under waste land rules. *Resolved* that it be laid before the General Meeting to be presently held.

Read and *Recorded* the following letters:

Circular from the Secretary, U.P.A.S.I., regarding shipment of tea per S.S. *Nurani* from the West Coast.

Circular from the Secretary, U.P.A.S.I., informing that the My Durbar intend applying to the Government of India for the emp ment of Dr. Adolph Lehman for a period of five years.

Circular from the Secretary, U.P.A.S.I., informing that the deposit of Rs.5,000 with Messrs. Arbuthnot has been renewed fo months and to bear interest at 5% per annum.

Memorandum from Sadasivum & Co., requesting to be infor whether Members of the S.P.A. would like to have them as agen

Circular from the Secretary, U.P.A.S.I., forwarding cop Memorial on the encashment of Currency Notes.

Circular from the Secretary, U.P.A.S.I., copy of a letter from Secretary to Government of Mysore applying for the temporary of Mr. Cameron's services, etc.

Letter from T. P. Nagoratnum Pillai informing that they supply articles required for use of Planters.

Commercial Circulars No. I. Bhabar Grass, etc.

Proceedings of a General Meeting of the Coorg Planters' Ass tion.

Letter from the Deputy Tahsildar intimating that as arrivals ar few from infected localities that no special arrangements are neces for observation.

(Sd.) C. G. LECHLER,
Chair

(Sd.) ROBERT GOMPERTZ,
Honorary Secreta
S. I

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[w.—3-9-98—t.f.o.]

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[w. 1-10-98—t.f.o.]

PROCEEDINGS of the Annual General Meeting of the Shevaroy Planters' Association held in the Victoria Rooms, Yercaud, on Monday, the 3rd October, 1898, at 1 P.M.

PRESENT:—Messrs. F. Short, W. J. Lechler, J. C. Large, Rev. J. M. Kempf, Messrs. W. Rahm, C. Dickins, C. Ryle, R. A. Gilby, C. Lechler (*Chairman*), Thurston Short, S. M. Hight, T. B. Nicholson, E. Dickins, C. Rahm, B. Short, Stevens, and R. Gompertz (*Honorary Secretary*).

1. Notice calling the Meeting was taken as read.

2. *Read* and confirmed Proceedings of Committee at their Meetings of 1st August, 5th September and 3rd October.

3. *Read* letter from Mr. C. Dickins, dated 22nd September, 1898, complaining that nothing had been done regarding his application for a block of waste land, dated so far back as the 23rd March, 1897.

4. *Resolved* that the matter be reported to the Collector with reference to Proceedings of the Board of Revenue, No. 1230, Mis., dated 7th May, 1898.

5. *Read* and passed accounts for the year showing a balance in hand of (Rs.469-15-11) four hundred and sixty-nine rupees, fifteen annas and eleven pies on the 30th ultimo.

6. The Honorary Secretary then read his report as follows :—

MR. CHAIRMAN AND GENTLEMEN,

With your permission I will now read my report for the past year, and will commence with the important subject of finances. Except the price of bamboo pass books, which will have to be paid to Government when the books are expended and have been returned to the Honorary Secretary, we owe nothing whatever: and, as you will see from the balance sheet, the year closes with a sum of four hundred and sixty-nine rupees, fifteen annas and eleven pies in hand. In addition to this there is (Rs.115) one hundred and fifteen rupees due to the Association for subscriptions, which will no doubt shortly be paid, so that the balance available is really Rs.584, though only Rs.470 of it are actually in hand at present. There is also a sum of Rs.30 due by Mr. Abbs; but as I can get no reply to the various letters I have sent him, I have written this off as a bad debt, and have removed his name from the books of the Association.

ii. I much regret to record that during the year we have lost one of our oldest and most respected members by death. Three have permanently left the district, and one has become incapacitated from attending to business by serious illness. Five members have thus left us, but nine others have joined; so that we have now 39 members on the rolls as against 35 at the beginning of the year. It is, I think, admitted by all that District Associations, and the United Planters' Association, Southern India (which is the outcome of them), do good and useful work; and it is greatly to be regretted that every planter does not join us. If members would but use their influence with all their friends, and point out the incongruity of a man's benefiting by the work of an Association to the expenses of which he contributes nothing, I think the anomaly would soon disappear.

iii. During the past year the system of issuing supply bills—or cheques—on the Yercaud Treasury, at a small premium, instead of cashing currency notes there, at par, has been introduced, in spite of the remonstrances of this Association, supported by the United Planters' Association, Southern India. Owing to the exertions of this Association, however, the premium has been reduced from annas four or more, as originally proposed, to two annas per 100 rupees. Taking the saving at only two annas per Rs.100 on het monthly drawings (about Rs.40,000), this makes Rs.50 per month saved, or Rs.600 per annum, through the efforts of the District Association, and the drawings are likely to increase.

iv. If Government were content to give us the option of cashing notes here at the same premium, your Committee would have been willing to accept it, rather than press their objections further. But as the Accountant-General now refuses to allow notes to be cashed here at all, either with or without a premium, and as he also refuses to grant cheques for smaller sums than (Rs.500) five hundred rupees, great and necessary inconvenience is caused by the innovation. Consequently your delegates laid the matter before the United Planters' Association at their last General Meeting, with the result that that body has submitted a Memorial to the Supreme Government praying that notes may be made cashable at every Treasury in India. A copy of this Memorial has been circulated to the Committee, and is now lying on the table.

v. The labours of the Currency Commission are not yet com-

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[w. 1-10-98—31-3-99.] E. D. SMITH & CO., MADRAS.

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Nagercoil, Travancore.

[w.—15-10-98—14-1-99.]

pleted and, of course, the result cannot yet be known. But in spite of the efforts of your representative, Mr. Acworth, there is, I fear, little chance of the mints being re-opened at present. The agitation of planters on this subject has been very much misunderstood, and they have been accused of selfishly endeavouring to secure large profits for themselves at the expense of their fellow-subjects. Never was a more mischievous mistake committed, or a more groundless accusation made. The planters have not moved in the matter only as planters, but as producers, and as the mouthpiece of the mass of uneducated ryots who have well been called "the voiceless millions of India" and who are just as much interested as planters are in abolishing an inflated rupee, which is ruining the produce trade of the country. Planters—or rather producers—are by no means clamouring for enormous profits at the expense of their fellow-taxpayers. The only demand is that Government should cease to tamper with the currency and to interfere with the laws of supply and demand, which may be called the laws of nature. Producers require a natural rupee, which is at present worth about 11*d.* instead of 16*d.* At this rate the Secretary of State calculates that the loss to the Indian Government would be about fifteen crores. Producers are perfectly willing to bear *their fair share* of this loss, as stated by their representative, Mr. Acworth, before the Currency Committee. But they now lose 5*d.* on every rupee, which is equal to 31¼%. The exports are worth about 108 crores, and the loss on this at 5*d.* per rupee (or 31¼%) comes to 34¾ crores; and this crushing tax upon our exports acts as a direct bounty to those who compete with us. No wonder producers are exasperated at the timid and short-sighted policy of Government, who, to save themselves from a possible loss of 15 crores, are doing their best to strangle the export trade by making us pay a bounty to our competitors—not of 15, but of nearly 35, crores. When it is remembered that this crushing impost falls exclusively on one section of the community, viz., producers, surely it is as absurd, as it is false and mischievous to call them selfish for protesting against it.

vi. The Indian ryot is somewhat slow of comprehension; but when the fact once soaks in through the mists of his clouded intellect that he is being mulcted of 35 crores of rupees to save the Secretary of State from a possible loss of 15, the "voiceless millions" will be no longer dumb. The mints will then probably be re-opened; but not until half the producers have been ruined and the bulk of the export trade has been diverted to other countries from whom it will be impossible to recover it.

vii. I have gone into these last two matters at some length not only because they—especially the last—are of great importance to us, but also because though the efforts of the United Planters' Association, Southern India, have not as yet been crowned with success, they have at least given a widespread publicity to the opinions of the planting body, and have procured for them a patient hearing which would otherwise have been impossible.

viii. In obtaining the appointment of an influential Committee to enquire into the planters' grievances, and in many other matters, the United Planters' Association, Southern India, has done good and useful work: but it must never be forgotten that it is supported by, and owes its existence to, the District Associations, which, as I have said above, it is incumbent on every planter to join.

ix. The Committee and myself now place their resignation in your hands, and request you will be so good as to elect office-bearers for the following year.

Yercaud, } Robert Gompertz,
3rd October, 1898. } *Honorary Secretary, S. P. A.*

7. *Resolved* that the report of the Honorary Secretary be adopted, printed and circulated to all the members of the Association.

8. *Resolved* that a hearty vote of thanks be accorded to Mr. Gompertz for the ability with which he has conducted the duties of Honorary Secretary.

9. *Resolved* that the hearty thanks of the Association be accorded to Mr. Lechler for his able conduct in the chair during the past year.

10. The Chairman, Honorary Secretary and Committee having tendered their resignation, office-bearers for the coming year were balloted for with the result that the same Committee was elected as last year, viz., Mr. Lechler (*Chairman*), Mr. R. Gompertz (*Honorary Secretary*), and Messrs. Andersen, C. Rahm, C. Dickins, Kempf, F. H. Short and Large were elected Members of the Committee.

C. G. Lechler,
Chairman.
Robert Gompertz,
Honorary Secretary.

MARKET REPORT.

COFFEE.

R. J. Rouse & Co's Weekly Coffee Report (September 30, 1898) says:—

The market at Public Sales continues dull and sellers in many cases to buy in for lack of competition, but just at the close a slightly impro tone prevailed.

About 600 bags East India were offered, but only a small part sol easier prices, the rest being bought in.

The colory qualities of Columbian and New Granada met a good dem and were disposed of at fully previous rates, whilst yesterday the infe descriptions met more attention at fairly steady prices.

Futures have been firmer on unfavourable crop reports from Santos, the market advanced 6d to 9d during the first part of the week, but cl quiet 3d off the best.

Messrs. Wm. Jas. and Hy. Thompson's Report of the Colonial Markets fo Week ending September 28th, 1898, states:—

This market is very quiet, and the demand at auctions slow, ever the better kinds, which are somewhat cheaper; ordinary qualities are rather lower. Brazil markets are very quiet.

Futures have fluctuated slightly near months showing about 3d t per cwt. advance, other months being unchanged, viz.:—Good ave Santos in Havre, December delivery, fcs. 38.50, in Hamburg pf. 32, No. 7 low ordinary Rio, in New York $5.80.

Daily receipts averaged 11,700 bags in Rio, and 31,100 bags in Sant

To-day's London official quotations are:—

	Oct.	Dec.	Mar., '99.	May.	July.	S
Santos ...	31/-	31/3	32/-	32/3	32/6	

We quote:—

Ceylon, mid. to good mid.	101/@108/	Costa Rica, mid. to fine...	69/ @
Do. small to low mid.	79/ „ 99/	Do. ord. to low middling.	37/ „
East India, mid. to good mid...	70/ „ 92/	Jamaica, good to fine ord.	32/ „
Do. small to low mid.	58/ „ 72/	Do. greenish to fine colory...	65/ „
Guatemala, mid. to fine...	66/ „ 98/	African ...	26/ „
Do. good ord. to low mid...	50/ „ 64/	Columbian, ordinary ...	36/ „
Salvador, good ord. foxy greenish...	38/ „ 42/	Do. good ord. to low mid...	42/ „
		Do. mid. to fine...	64/ „

Receipts in Brazil to 28th September, compare as follows with prev years:—

	1898-99. Bags.	1897-98. Bags.	1896-97. Bags.
Rio	1,001,000	1,420,000	1,080,00
Santos	2,079,000	2,507,000	1,795,000
	3,080,000	3,927,000	2,875,000

Prices realized at auction for the principal Marks of East India:—

NEILGHERRY.

	A	B	C	PB
Terramiah ...	no bid	no bid	45/6	75/-
Crofton } Nilgiris }	bid 73/-	53/6	46/-	62/-
Kinnacoorie } Nilgiris }	65/- bid	52/-	44/6	55/- bid
AGN } Hallacarry } Nilgiris }	75/- bid	no bid	48/-	90/-
Craigmore } Nilgiris }	83/- bid	60/- bid	49/6	97/-

Landed last week ... 802 *tons. Deliveries* ... 687 *tons. Stock*...19,751
Do. last year ... 368 „ „ ... 720 „ „ ...11,744

The *London Commercial Record* of 30th ultimo reports:—

There has been a dull tone in the market, the undesirable quality o chief part of the supplies offered contributing in a great measure t flatness which prevailed. A few lots of Ceylon brought about valuat The late shipments of East India exhibit a considerable falling o quality and appearance, and sales have been difficult to effect, even a

decline. A large proportion of the Costa Rica and Colombian consisted of inferior descriptions, which were in limited demand at 2s. to 3s. per cwt. fall and in some cases even more. The market for "futures" advanced on reports of injury to the bloom of the crop, but subsequently became quiet, and the closing prices show no material alteration, viz.:

London	...Santos	...December delivery ...	31s. 3d.
New York	...No. 7 Rio	... „ „ ...	5.80 cents.
Hamburg	...Santos	... „ „ ...	32¼ pf.
Havre	...Santos	... „ „ ...	38¼ francs.
Holland	...Good ordinary Java	... ...	35½ cents.

Imports Deliveries and Stock of Coffee in London are as follows:—

		Stock.		Imports.	
		1898.	1897.	1898.	1897.
West India	... tons	513	354	1,641	816
Ceylon	... „	142	179	307	475
East India	... „	1,886	1,868	5,590	5,126
Mocha	... „	542	484	718	527
Brazil	... „	3,910	2,320	3,280	2,001
Other Foreign	... „	12,442	6,259	27,344	20,955
Total	... „	19,415	11,464	38,880	29,900

		Home Consumption.		Export.	
		1898.	1897.	1898.	1897.
West India	... tons	270	268	1,194	542
Ceylon	... „	112	137	161	283
East India	... „	1,953	1,798	2,858	2,271
Mocha	... „	545	401	128	170
Brazil	... „	736	916	1,607	2,000
Other Foreign	... „	6,950	7,089	12,643	10,702
Total	... „	10,566	10,609	18,591	15,966

The preceding figures exhibit—

In the imports an increase this year of	8,980	tons.
Home consumption a decrease of	43	„
Export an increase of ...	2,625	„
Stock an increase of ...	7,951	„

Auctions this week have gone off as under:—

Ceylon.—*Plantation.*—12 casks 9 barrels 5 bags sold triage 30s to 55s, dull brownish 79s to 85s.

East India.—668 bags partly sold as follows:—*Travancore* triage 37s, smalls 47s, low middling palish 58s 6d; *Neilgherry*, triage 30s to 39s, smalls 40s to 51s 6d, pale medium 52s to 54s 6d. dull gray 55s to 59s, low middling 65s middling 70s to 73s, bold 80s, pea-berry 75s to 97s.

Jamaica.—Of 59 barrels 40 bags only 30 packages sold, common mixed pale 27s 6d, good ordinary pale 35s 6d, London-cleaned, smalls 28s 6d, pea-berry 60s.

South Sea Island.—9 bags sold, ordinary brown 31s.

Costa Rica.—2,776 bags mostly sold, triage 29s to 32s, smalls 31s 6d to 38s, good to fine ordinary dull pale 39s to 46s, fine fine ordinary 49s to 53s, low middling 65s to 66s, middling dull greenish 67s to 70s 6d, colory 90s, pea-berry 42s to 53s; London-cleaned, hand picked smalls 36s 6d, dull boldish 85s to 85s 6d, peaberry 87s.

Guatemala.—Of 1,228 bags offered only about 250 bags sold, smalls 34s 6d to 34s, good ordinary dull pale 43s 6d, pea-berry 49s 6d; London-cleaned, smalls 34s 6d, pea-berry 75s.

Vera Paz.—Of 320 bags catalogued only 80 bags sold—London-cleaned, mixed small 33s to 36s 6d, pea-berry 57s to 73s.

Honduras.—311 bags bought in.

Columbian.—Of 3,018 bags offered about 2,050 bags sold—mottled pale Antioquia, smalls 31s to 38s, good ordinary 44s, fine ordinary 49s 6d to 50s, low middling clean pale 59s 6d, good pale 66s, pea-berry 57s to 64s; good to fine ordinary pale 38s 6d to 47s, fine fine ordinary 53s, low middling greenish 58s to 62s, middling 63s 6d to 65s, good middling 70s to 74s, good colory 80s to 82s, fine bold 93s 6d, pea-berry 87s 6d; London-cleaned, smalls 29s to 49s 6d, damaged and dull soft greenish mixed red and black 51s 6d to 6s 6d. low middling dull soft 62s, middling 64s 6d to 70s, good middling colory 72s 6d to 78s, good and bold 81s to 87s 6d, fine colory 94s, fine bold ditto 104s 6d, pea-berry 64s to 95s 6d.

Mexican.—Of 118 bags offered only a few lots sold—London-cleaned, smalls 30s, mixed damp 44s to 44s 6d, pea-berry 61s.

Bolivian.—50 bags damaged London-cleaned sold at 43s.

To-day's auctions comprised:—56 pkgs. Jamaica, 163 bags Nyassaland, 699 bags Colombian, 13 bags Peruvian, 350 bags Vera Paz, 1,299 bags Guatemala, 72 bags New Grenada, and 200 bags Salvador. No change in the market.

To-day's Havre and Hamburg Coffee Terminal Quotations.
(*Communicated by Mr. Edward Nauen.*)

	Havre.			Hamburg.	
	10.15 a.m.	12.15 p.m.	3.30 p.m.	10.16 a.m.	2.30 p.m.
Dec. 1898	39	38⅝	38⅝	32¼	32
March, 1899.....	39¼	39	39	32½	32½
May.....	39⅝	39½	39½	32⅝	32⅝
Sept., 1898	40⅝	40	40	33½	33½
	Quiet. Value.	Quiet. Value.	Steady. Sellers.	Steady. Value.	Quiet. Buyers.

TEA.

From the London *Commercial Record* of 30th ultimo we take the following:—

China.—Auction supplies have been very poor, but more than enough for the limited demand. Catalogues embraced 3,468 packages, only a small proportion selling at unchanged rates, viz.:—

half-chests new black leaf Congou, Oanfa 7d.
ditto Red Leaf Congou, Kaisow 4¾d.
boxes New Make Congou 4⅞d to 6d.
boxes Scented Orange Pekoe 7½d.
half-chests and cases Moyune Green, season '98-99—Gunpowder, medium to good 6d to 9¼d, fine 1s 4d; Imperial, common 3⅛d to 3⅞d, fair 5d to 5⅛d, good 8¼d; Young Hyson, ordinary to fair 4d to 5¾d, medium to good 6d to 8¼d, fine Sow Mee 1s 3d; Hyson, low and common 3d to 4d, medium 7d, Foong Mee 8d to 9d.

Indian.—Public auctions were larger, aggregating 45,900 packages, compared with 39,200 packages in the previous week, and 48,600 packages at this period of 1897. There was a fair enquiry for most descriptions, and not much change in quotations for good-liquoring parcels. Where however any falling off in quality was noticeable, competition was somewhat restricted, and lower prices had to be accepted in order to effect sales, particularly in the case of Pekoes over 7¼d per lb. Strong Broken Teas and Broken Pekoes continued to attract attention, and sold well.

For 36,400 packages on estate account 8¾d per lb. was obtained, contrasted with 9½d per lb, for 34,300 packages and 10d per lb. for 35,900 packages in the two preceding seasons.

Total printed on Importers' account in September was:—

1898.	1897	1896.
169,800 pkgs.	195,800 pkgs.	179,400 pkgs.

Ceylon.—Sales comprised 23,100 packages, *versus* 21,900 packages on the 20th inst., and 14,800 packages a year ago.

Demand was steady for nearly all kinds, but scarcely so much eagerness was displayed to purchase some of the medium to fine leafy sorts, especially those lacking strength which often passed in buyer's favour. Common grades as well as finest were well supported.

Partly on account of the smaller proportion of choice invoices the average is reduced to slightly above 8¼d per lb., against 8½d per lb. on the 22nd inst. and 8¾d per lb. at this date in 1897.

Catalogues during the month included the following:—

1898.	1897.	1896.
86,500 pkgs.	89,600 pkgs.	89,900 pkgs.
(Avge. 8¼d per lb)	(Avge. 8d per lb.)	(Avge. 8⅝d per lb.)

Java.—Only 162 packages of direct import were brought forward and passed without material alteration. Rather over 1,000 packages are advertised for the 6th prox.

The amount offered in September was:—

1898.	1897.	1896.
5,700 pkgs.	2,700 pkgs.	5,300 pkgs.
(Avge. 6¾d per lb.)	Avge. 7⅛d per lb.)	(Avge. 7¼d per lb.)

Deliveries.

The clearances of all Tea (on which duty has been paid) from the London warehouses, as per official returns, were:—

From 1st to 27th Sept., 1898.....15,224,291 lb.
„ „ 1897.....18,660,819 „
(embracing a large special payment made by one Firm on the 27th September, 1897).

During the week the following have been printed for sale by public auction:—

	Sold. Pkgs.	Withdrawn. Pkgs.	Total offered. Pkgs.
India.....	39,225	6,629	45,854
Ceylon	21,524	1,578	23,102
Java	109	53	162
Total...	60,858	8,260	69,118

Also 798 packages from second hands.

Messrs. Gow, Wilson and Stanton state in their Indian, Ceylon, and Java Tea Report, dated September 30th, 1898 :—

QUANTITY BROUGHT TO AUCTION IN LONDON

FROM 1ST JUNE TO DATE.

	Indian.	Ceylon.	Java.
1898-1899...	381,219 packages.	429,875 packages.	15,644 packages.
1897-1898...	386,584 ,,	463,039 ,,	15,871 ,,

46,058 *pkgs.* INDIAN
23,960 ,, CEYLON
162 ,, JAVA
} Total 70,180 packages were offered in public auction this week.

Indian. The week's auctions comprised 46,058 packages, against 39,496. The market was steady for all descriptions, except medium grades which sold with some irregularity and occasionally at slightly lower rates. Teas of exceptional quality still continue to realise high prices.

The Official Wire gives the revised estimate of the season's crop as 154 million pounds, and the quantity available for the United Kingdon as 139 million pounds. The following table compares these figures with the revised official estimate made at the same time last year.

1897/8 Crop.	Total crop. lb.	Available for U. K. lb.
Original estimate ...	156,500,000	138,500,000
Revised estimate ...	148,000,000	130,000,000
Actual outturn ...	148,000,000	134,000,000

1898/9 Crop.	Total Crop. lb.	Available for U. K. lb.
Original estimate ...	158,750,000	140,500,000
Revised estimate ...	154,000,000	136,000,000
Actual outturn ...	...	...

It will be seen that should these figures prove correct, there will about two million pounds more available for the United Kingdom than the case last year.

In recent arrivals from Assam the good quality previously noticed barely maintained. From Darjeeling a few exceptionally fine Teas h been sold, although here again in later shipments this character was generally maintained. Dooars are about on a par with last year. Cac and Sylhet have suffered severely both in quantity and quality, owing unfavourable weather.

The average price is below last year for almost every district.

Ceylon. With a continuance of the improvement in quality rece noticeable, buyers naturally regarded the offerings with interest, stren and tone being thus afforded to the market, with good all round comp tion. No actual rise can however be quoted, and considering the qua of Tea, buyers are now obtaining excellent value for their money. A ages :—" Carolina T. C. Goatfell," 1/1 : " Hapuale Co. Kellie," " Ho wood," " Newera Eliya Co., Concordia," & " S. T. Co., St. Leonards," 1

Average 8·15d. against slightly over 8½d. same period 1897.

Java. The few Teas brought forward sold well. 1,033 packages printed for sale next week.

Bank Rate 3 per cent. Exchange on London three months sight Calcutta 1/4⅛. Colombo 1/4⅛.

PUBLIC SALES OF SOUTH INDIAN TEA.

(AVERAGE FOR ALL INDIA 8·69d.) *September 30th.*

GARDEN.	Total.	Average.	Broken Org. Pek. or Flowery Pekoe.		Pekoe and Unassorted.		Broken Pekoe.		Pekoe Souchong.		Broken and Souchong.		Fannings, Du and Various	
	Quantity	Price.	Quantity	Price.	Quantity	Price.	Quantity	Price.	Quantity	Price.	Quantity	Price.	Quantity	Pric
Travancore ...	**1152 p**	**6·21**												
Bon Accord ...	105	6¼	...	...	36	5¾	40	7½	17	5¼	...	...	12	3½
Braemore ...	150	5½	...	...	64	5¼	57	6 6¼	...	...	18	5	11	3½
Carady Goody ...	124	6¼	50	6¼	26	5½	34	7¼	14	5¼	...	...	...	...
Cheroot Mallay ...	82 p	5¼	...	...	46 p	5 5¼	36½c	5¾	...	...	...	...	...	...
Fairfield ...	125	6	...	...	54	6	36	6¼	25	5½	4	5½	6	6
Kinmylies ...	64½c	5¼	...	...	60½c	5¼	...	...	3½c	5	...	...	1½c	3
Mahandragherry ...	44½c	5½	...	...	40½c	5½	...	...	4½c	5	...	...	...	...
Merchiston ...	62 p	6	16½c	7¾	30	5¼	13½c	7½	...	...	...	...	3½c	3
Sth Trav Est Ven...	133	6½	...	...	55	6	47	7¾	22	5½	...	...	9	5
Travancore T C B A.	263	7	...	...	79	5¾6	131	7½8¼	14	5½	6	5 5¼	26	7 7

IN AUSTRALIA.

The Melbourne *Leader* of Sept. 24 says :—

The *Chingtu* has arrived from Foo Chow with 300,000 lb. of new season's tea, comprising the fifth shipment. The market locally is very firm, and sales have been made privately with freedom at full rates for all lower kinds, grading up to fair flavoring Panyongs. Of Ceylon there are comparatively no stock in first hands during the week, all lines being cleared up. Dust sold at 4d, common pekoe souchongs, 5d to 6½d ; flaky fannings, 5d to 5½d ; broken leaf kinds, 6d to 6¾d ; leafy pekoes, 7½d to 7¾d ; good quality orange pekoes, 10½d to 11¾d and choice hill grown pekoes up to 1s 6d. The *Bhundara* brought 175,000 lb. of Indian. Sales held during the week were brisk, and together with private business some 2,000 packages have been sold. Rough to good quality pekoe souchongs worth 5¾d to 7½d ; leafy pekoes, 7½d to 8½d ; tippy pekoes up to 8d, and good quality orange pekoes to 11d.

PEPPER.

The London *Commercial Record* of 30th ultimo reports :—

Black.—A quiet market this week with values unchanged. Singapore on the spot has been sold at 4 1/16d to 4⅜d, Aug.-Oct. shipment at 4⅜d, Oct.-Dec. 4 3/32d to 4⅜d, and Nov.-Jan. at 4 1/16d. Sales about 200 tons.

Auction supplies on Wednesday were restricted to 40 bags Penang, which were sold at 4⅜d per lb.

White is quiet, and easier prices have been taken. Singapore on the spot has been sold at 8⅛d to 8¼d, Oct.-Dec. shipment 8⅜d to 8 7/16d ; Penang on the spot at 7½d to 7 9/16d, near at hand and Sept.-Nov. shipment at 7⅝d, Oct.-Dec. at 7 1/16d down to 7 3/32d, and Nov.-Jan. at 7¾d per lb.

At public sale on the 28th inst. only 20 bags Penang were catalog and these sold at 7⅜d per lb. for fair.

Messrs. WILSON, SMITHETT & Co. write :—" Notwithstanding a stea improving statistical position generally the market for all description Pepper remains at the moment disappointingly dull, and transactions unimportant. On the other hand, holders view the future with confide and appear content to await a revival of demand. The Havre market shown an improving tendency, although closing at some reaction ; but effect of the low prices established by the recent decline is apparent h consumers having secured supplies in that *entrepot* as shewn by the la deliveries. The crop of Tellicherry just commenced is said to be a sm one, estimated at about 3,500 tons, and if this is approximately corr little can be spared for Europe, thus further strengthening the positi

GINGER.

Cochin.—Offerings were on a liberal scale, catalogues embracing 1, bags 187 cases, but only the commoner qualities were sold in quant the bids for standard grades being generally too low for acceptance. cases 285 bags found buyers as follows :—good bold a cut 85s (which dearer), medium, some small, roughly cut and scraped 57s 6d, mou ditto 55s ; lean and dark medium and small washed rough 19s 6d, pre able ditto but mouldy 19s 6d, to 20s, ends and shrivelled brown 18s cuttings 13s, shrivelled pickings 11s 6d per cwt.

Jamaica very dull of sale, only 10 barrels being placed out of arrels offered, at 67s 6d per cwt. for dark small.

PLANTING BOOKS.

Map of Ceylon Tea Estates Rs.9; colored Rs.10; Mounted in case Rs.14. Map of Ceylon Plantations, Plain Rs.8. Inga Va, Rs.2-8. Areca Palm, As.12. Cocoanut Planter's Manual, Rs.4-10. Ceylon Manual of Chemical Analyses, Rs.3-10. Tobacco Cultivation, Rs.3-10. India Rubber (now in the Press). Coffee Planter's Manual (now in the Press). All about Spices, Rs.3-10. Coffee Tree and its Enemies, Rs.1-8. All about Grub, Rs.1-5. Brazil as a Coffee Country, Rs.1-8. Cardamoms, Re.1. Ceylon Coffee Soils and Manures, Rs.1-9. All about Aloe and Ramie Fibre, Re.1. Estate Buildings, Rs.4-4. Coffee and Chicory, Rs.1-13. Coffee Cultivation in Ceylon, As.5. Tea Cultivation and Manufacture, As.5. Tea Cultivation in Ceylon, As.6. Tea at high elevations in Ceylon, As.3. Manuring of Tea Estates, As.8. To Economise Labour Supply, As.12. Planting, Pruning and Preparation of Tea, As.12. Salt for Agriculture, As.8. Cocoa, Cocaine and its Salt, Rs.2. On the Importance of Lining, As.4.

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Colombo.

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[w. 3-9-98—t.f.o.]

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The Madras Railway Company have for sale a large quantity of useful stores, machinery and plant of various descriptions, some of which are specified below :—

Augers, screw of sizes.
Blocks, irons, galvanized, of sorts and sizes.
Balances, Poley's, to weigh 400lb.
Beak, iron, large.
Belting, leather.
Bevils, sliding.
Bolts, screw, with nuts.
Brushes, platform, with handles.
Chisels, of sorts and sizes.
Chains.
Coffee mills.
Cramps for drilling rails.
Compasses, proportional, beam, and Napiers.
Diving apparatus.
Emerald green, ground in oil 28lb. kegs.
Files, of sorts and sizes.
Forges, portable, with bellows.
Glasses for semaphore, of sizes.
Glasses, crown, of sizes.
Gauges, iron, for point rails.
Handles, door, spare.
Handles, iron, for pit saws.
Hinges, brass and iron, of sizes.
Iron, angle, of sizes.
Iron, flat, of sizes.
Iron, T, of sizes.
Lamps, of sorts.
Nails, iron.
Paints and powders.
Paste, black Torbays, 28lb. kegs.
Pitch, Stockholm.
Rulers, rolling, parallel.
Screw, jacks, tripod & traversing combined with bottles, 5 tons.
Steels, spring, 1½in. by ⅜in.
Winches, crabs.
Wheels, cast iron for trucks.

A complete list of the articles, with prices and other particulars, may be obtained on application to the General Storekeeper, Madras Railway, Rayapuram, and the articles may be inspected by intending purchasers within office hours.

Madras Railway,
Agent & Manager's Office,
Rayapuram Terminus,
Madras, 29*th Sept.*, 1898.

LOUIS S. MOSS,
Agent & Manager.

[w. 1-10-98—31-12-98.]

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PLANTING OPINION.

A WEEKLY JOURNAL

WRITTEN BY PLANTERS FOR PLANTERS.

VOL. III.] MADRAS, SATURDAY, OCTOBER 29, 1898. [No. 43.

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DOMESTIC OCCURRENCE.—The fee for inserting a domestic occurrence will be *One Rupee* for each insertion, payable in advance.

N. B.—Remittances should be sent to E. C. Duff & Co., Proprietors, "Planting Opinion," 16/17, Armenian Street, Madras.

IMPORTANT NOTICE.

The Offices of this paper having now been removed to Madras, all remittances should be made payable to E. C. Duff & Co., Proprietors, *Planting Opinion*, 16 and 17, Armenian Street, Madras, who will also attend to all advertisements, &c.

Letters to the Editor should also be addressed to the Madras Office.

SEASON REPORTS.

TO OUR SEASON REPORTERS.

Please post your next reports to reach Madras on Friday, the 4th November, 1898.

Season Reports should be sent to the Printers, Messrs. Addison & Co., direct, and not to *Planting Opinion* Office.

Coorg.

Polli Betta, 25*th Oct.*—*Weather.*—Welcome cessation of rain from Tuesday, 18th, but started afresh on 23rd. Fine weather required for ripening crop and to help trees to get over leaf-disease. *Crops.*—Very green this side; but some little fly-picking doing on the other side, Siddapur way, I believe. *Plant-disease.*—"Leaf" bad in parts. *Interesting Items.*—Successful termination of Rifle Meeting on 20th instant. Volunteer Dinner at Club on 19th, and Dance at Club on 20th.

THE STRUGGLE OF COMPETITION.

Planters throughout Southern India are feeling the strain of competition with other producing centres. They are anxious regarding the future. Over-production is talked of. The currency problem has to be considered. Exhaustion of the soil is a matter that cannot be overlooked. Coffee suffers as well as Tea, though not precisely in the same way. Yet, through all the despondent thoughts that will come, the South Indian tea-planter and the South Indian coffee-planter continue to work, persistently if not very hopefully. The question naturally suggests itself, are they working in the right way? It would be absurd to suppose that this

question has not been fully considered by planters themselves. Yet glancing over recent reports of proceedings of District Associations and of the U.P.A.S.I., we find something wanting. The fact that New Markets have dropped out of the field of discussion, has been commented upon in a previous issue. Still more noticeable, however, is the entire absence of reference to the question of cost of production. Now it seems to us that the planter, as a producer of a certain commodity for sale, when he finds competition strong and prices becoming unprofitable, should consider (1) whether he can lessen the cost of production, (2) whether he can improve the quality so as to command a higher price, (3) whether he can increase the quantity without extra outlay, and (4) whether he can find some new market that will pay him better prices than he is obtaining in those wherein he has been selling formerly. In other words, there are really two main points for consideration: (1) the cost of the commodity to him; (2) the price he can get for it. In the difference between these lies his profit.

It is not our desire to more than touch upon the first point, in the hope that planters may give it earnest consideration. It is a subject that has many branches. Cost of Coffee, for instance, includes calculations of capital outlay, interest, estate charges, curing, railage, freight, &c., for the cost we allude to is not the cost on the estate, but the cost delivered in the chief markets of the world. For convenience, we may take London as representing these. Step by step the planter who wishes to meet competition, which makes itself felt by him in the form of reduced prices, must study how little capital he can do with, what are the most economical methods of raising, curing and delivering his crops. In practically every instance, the capital was fixed long ago; but the question how to supplement that capital is often only too pressing. The use of artificial manures, again, must be considered. The cost of delivering these on the estate, the cost of labour and many other points have to be studied, and we cannot but think that Coffee-planters might gain much by comparing the experiences of estate with estate, of district with district. So, too, with Tea; but in the case of Tea there is yet another matter for consideration that does not so closely touch the Coffee-planter's interests. Methods of curing are well established in the case of coffee; and neither the method nor the cost of curing is under his immediate control. With Tea the position is very different. Methods vary greatly. A little carelessness may mean a heavy loss. The establishment of small factories is necessarily expensive, yet, so far, a way has not been found whereby co-operation of many estates in one factory may bring about a reduction of expenses. It is here the chief menace to the South India Tea industry is to be found. Cottage industries in Great Britain have long dwindled away before the advance of mill industries. In India, too, the hand-loom is giving way. In the United States we find most striking examples of the small cost of goods produced on an enormous scale. In South India we shall yet learn that the estate factory cannot long hope to compete with the factory that works for groups of estates, and that the large estate has a great advantage over the small one, provided that the methods, etc., of the one are on all fours with the methods, etc., of the other. Other things being equal, the large estate should not only be able to attain a higher standard of manufacture, but to lay its product down at a lower cost than the small one; and this means that in the strain of competit small estates must in time go to the wall.

The difficulties in the way of settling this question Tea factories are very great, and it may be that So India will have to stand by her estate factories and to make up in some other way the disadvantages t incurred. At least, however, let us see the matter co dered, and discussed, and the light of personal opini thrown upon it. It seems to be years since it was touc upon. Let us see a concentration of energy bent upon solvi the problem how to reduce cost to a minimum while ma taining quality at the highest possible level. Probably ev planter can learn something from, and teach something his neighbour. Personal rivalry should be sunk in c siderations of the common welfare. The aim of one a all should be to so strengthen the position of their produ that these shall not fear the competition of any district any country. We feel convinced that methods of ma facture of tea in this part of the world are in many ca susceptible of great improvements. It is at least possi that coffee-curing might also be conducted more econo cally than it is now; and the fact that the name of curing establishment is a factor in determining the price London shows that there is room for improvement in so instances. The subjects of rail and steamer freights ha already come under consideration at odd times, and ha been talked ever at U.P.A. meetings in a desultory sort way. What we would now urge is, that a few leading m should publicly recognize the fact that cost is after all m important than London price. A decline in the latter w do the planter no harm if he can simultaneously bring abo a corresponding reduction in the former. To work for hi prices, is one way of facing competition; to work for l cost of production, is an infinitely safer one.

SIGNED CORRESPONDENCE.

As a result of consulting with friends as to the b methods of rendering this paper more attractive and m practically useful, we have received a few suggestio which are being carried out as far as possible. One gr fault that we have ourselves observed is the little we rece for insertion as regards Coffee. We are trying to reme this, but must also appeal to coffee-planters for assistan A suggestion has been made by a coffee-man that we sho start a signed section for signed correspondence only. T shall be done. We will admit to this section only lett signed by the respective writers. Further, we will n admit to any part of the paper replies to, or criticisms letters in this section, unless such replies or criticisms a also signed. Letters for insertion in the new section sho be marked "signed section." We call upon Mr. J. Hamilton, of South Mysore, the original proposer of t scheme, to open the ball, and, as a subject, commend to notice "Manures and Manuring" to be treated in th broadest and widest sense. The fact that Mr. Hamilto suggestion reached us almost immediately after t manuscript of our leading article on "The Struggle of Co petition" was completed, gave it an additional interest us, as it practically indorses our suggestion, that plant should "compare notes" much more freely than they ha hitherto done.

We take this opportunity to invite planters of T

Coffee, Cinchona or other estate products, to make further suggestions for the improvement of the paper. We would also remind them that the office of the paper is now *at Madras*, not at Coonoor.

REDUCTION OF THE BRITISH TEA DUTY.

The letters from London brokers, published elsewhere in this issue, are sufficiently contradictory to satisfy the most cynical and to puzzle the shrewdest. One holds that low teas would benefit, another that high class teas would be the gainers. Here, we find an opinion that a reduction of 2*d.* would be preferable to the entire remission of the 4*d.* duty now levied; there, it is recorded that the advantages to be derived from entire removal would be much more than double those resulting from a reduction of the present duty by one half. One party holds that an immediate stimulus would be given to demand, and that a reaction would set in later. Another states somewhat didactically that he believes in all cases of a reduction of duty "the consumer does not get any benefit for a year or so, but there can be no doubt in a few years' time we would see a much larger consumption of tea if the duty were abolished." We cannot but think that this is an erroneous view, and, in fact, that it was a mistake on the part of the Indian tea-planter to raise this question of a reduction of the British tea duty. The simple facts are, broadly speaking, that it is low-class China tea that Indian tea has to dread most. The finer sorts have become rarer, and even when available are, we fancy, little used for blending purposes. A coloury Indian blended with a cheap China leaf gives a mixture that can be sold at a minimum price, and can thus be disposed of in very large quantities. China tea at 4*d.* or 5*d.* may thus be blended with Indian at 7*d.* or 8*d.* In the one case the present duty means 100 to 80 per cent. on the value, in the other only from 57 to 50 per cent. This points to a heavy disadvantage on the part of China teas. The removal of the duty would involve the removal of this disadvantage; the reduction of the one would mean the reduction of the other. Perhaps, therefore, it might be wiser to let matters stand as they are.

SHADE.

(*From a South Mysore Correspondent.*)

With reference to your correspondent M's letter in your issue of 15th October, the *Albizzia Jeyesaman* has never been tried as shade in this province. As far as I am aware, the only other *Albizzia* besides *Molucanna* which has been used for shade is the *Odoratissima* (Kanarese *Billawar*). This is indigenous to the forests of Mysore, and though not regarded as first-class shade, being deciduous and a surface feeder, is often left Coffee is slow to come on under it, but when once established appears to thrive fairly well. Perhaps your correspondent would send a few seeds of the *Jeyesaman* to experiment with.

I notice one of the Mimoseæ sub-order, though not an *Albizzia*, is being tried for shade in British Central Africa, viz., the *Pithecolobium Saman*, or rain tree. This was introduced into India many years ago, and I believe thrives well. Being of rapid growth, it might be worth while planters experimenting with it.

NOTES.

Calcutta Tea Sales. On 18th instant 17,946 packages were sold. There was a good competition without material change in prices. The average was 5 as. 8 pies. In consequence of the holidays, the next tea sales are fixed for the 3rd November.

A "Tea" Lord Mayor. Is it any satisfaction to tea planters to learn that Sir John Voce Moore, the new Lord Mayor of London, is in the tea trade—the head of the firm of tea merchants that bears his name? He is in his seventy-third year.

Brazil Coffee. The *Rio News* of September 6 states:—There is much complaint of drought in the state of Rio de Janeiro. In many localities the food crops are a total failure. Many coffee trees have died, and others have suffered so much that they will not bear next year.

Coffee in Coorg. We learn from private advices that Coorg is not likely to do badly with its coffee this year. Crops will be on about the middle of next month. Mr. Cameron will be there in November also, to make the investigations lately referred to. Let us hope the result will be material benefit to Coorg planters.

Ceylon Tea Grants. The Governor of Ceylon has been pleased, with the advice of the Executive Council, to sanction the proposed appropriation of £1,000 sterling for advertising Ceylon Tea in Germany. A request for the bounty of 10 cents a lb. has already been put forward with respect to a shipment of 2,010lb. green tea.

The China Mission. The idea of sending Mr. Atkinson to spy out the celestial land has fallen through, and that gentleman will have to console himself with the less exalted task of twisting food and wages statistics about in fancy patterns such as deceive while charming the eye of the innocent merchant of Calcutta.

Tea Diseases in Ceylon. Taking advantage of Mr. Carruthers' presence in Ceylon, the Chairman of the Planters' Association asked him to visit and report upon diseased tea plants on an estate brought under his notice. The Committee has since approved of the Chairman's action, and authorised payment of Mr. Carruthers' fee out of Association funds.

Locusts in Ceylon. A visitation of locusts has been reported from the Kurunegale, Matale and Kadugannawa districts in Ceylon. The attention of Government has been drawn to the matter, and the Planters' Association has requested that the Director of the Royal Botanic Gardens, Peradeniya, be asked to advise as to the best treatment.

Raising the Standard! The Committee of the Planters' Association of Ceylon has resolved:—"That a circular letter be issued to all proprietors and agency houses, recommending the destruction of factory sweepings and red leaf as likely to strengthen the position

of the tea market, and reduce the sale of a class of tea calculated to injure the good name of Ceylon tea."

Willing to be helped. The following naive advertisement is from the *Times of Ceylon* :—Wanted to know—by a young steady Sinhalese man, age eighteen years, occupation Cook and Appu, if there is anybody to take me to London, as I am very willing.—Please address : James R. Silva, care of Mrs. E. Kensington, Doomba Estate, Kotmale.

Colombo Tea Sales. At the public sale of tea at Colombo on 19th instant about 9,401 pkgs. = 682,961 lb. were offered, of which about 7,008 pkgs. = 410,140 lb. were sold. The sale opened with a depressed tone, but hardened considerably later on, and closed firm for all grades. The finest teas in the sale were :—Monkswood, High Forest, St. John's, Agra Ouvah, and Glasgow, and a small invoice from New Galway. Some of the best low-country invoices were :—Arapolakande, Fernham, Polatagama, and Pallegodde.

The U. P. A. S. I. Book of Proceedings, 1898. We have to acknowledge receipt of a copy of this publication. It contains not only a full report of the proceedings of the Annual Meeting of the U. P. A. S. I. last August (including proceedings in Committee), but excerpts from and *précis* of correspondence on the currency question, the lady-bird importation scheme, etc., and reprints of the statements and evidence of Messrs. Christie, Leake, Acworth and Hodgson with respect to currency matters.

The London Tea Market. Messrs. Gow, Wilson and Stanton wired to Colombo on 20th instant that the market was steady all round, but quoted fair liquoring Ceylon Pekoe Souchong 6½*d.*, and the average price of Ceylon Tea sold on Garden account during the week 8½. The latter figure shows a drop of ¼*d.* Reuter reported the same day :—Good to fine kinds good demand at fully previous rates. Offered 25,000 packages ; sold 24,000 packages. Pekoe Souchong 5½*d.* Average 8¾*d.* (unchanged). Indian.—Average 8¼*d.* (down ⅛*d.*) Out of 49,000 packages offered, 46,000 were sold.

American Tea. If we are to be led by Dr. C. U. Shepard's "message," we must fear the competition of Uncle Sam far more than that of John Chinaman. In the matter of Tea-cultivation, as in all other matters, Uncle Sam is going to lick creation, and perhaps a general Exodus of Indian planters, to the tune of "I'm off to Charleston," would be the wisest move they could make ! Joking apart, however, Dr. Shepard's message (reprinted on another page) is interesting, and if his tea should turn out to be leaf, and nothing more—plentiful but flavourless—we shall still be grateful to him for keeping us informed of his progress.

The Yellow Terror. From Mr. Ewen Cameron's evidence in relation to the extent that the closure of the Mints has been detrimental to Indian tea in competition with China, it would appear that the copper cash has risen in price 15 per cent., and that the export duty on tea amounts to another 15 per cent., while exchange has fallen 36¼ per cent., or in other words that handicap amounts to only 6¼ per cent. But further on his evidence Sir David Barbour brings out that this exp duty on tea is an old and not a new tax, which materi alters the position and raises the handicap *since the clos of the Mints* to 21¼ per cent. according to Mr. Camero figures.

Hope abandoned. The *I. P. G.* says : "We put it the proprietors of our tea estates a other mofussilites whether it is not time that they sho utilise the bountiful jungle products we have so of directed attention to ; for despite the depletion of stock the London warehouses, it is now beyond question that will not pay alone. Another season like the one n waning will bring even the big companies to the brink bankruptcy. The cold weather in Assam may now be s to have fairly set in ; hence no time ought to be lost taking initial steps for inaugurating such industries as s lac, and the laying down of the manifold economic pla which have been recommended."

An Appeal to Russian Enterprise. Mr. Heyman Orkin, who sc time ago obtained a concession the cultivation of the cacao pl and the manufacture of cacao in the Transvaal, is n about to try to raise in St. Petersburg £100,000 for ploiting his grant of 10,000 morgen of land. The comp which Mr. Orkin is to organise will have a wide enou scope if the scheme is carried out. Its money is not to employed solely in the cultivation of cacao, but the 10,(morgen are expected to give a satisfactory account themselves in respect to the production of coffee, t cotton, caoutchouc, and other tropical productions. T prospectus is evidently to be *wide* enough !

Refuse Tea. It has been suggested that dust and all the very lowest sort tea leaf should be converted into "caffeine." Can any our readers offer an opinion as to the feasibility of giv practical effect to this suggestion in India ? Teas of lowest description are certainly not worth shipping Europe. The freight "kills" them, and they in turn h to kill prices by swelling the total quantity of offerin On the other hand, a steady one anna or so a pound for refuse tea in this country would probably not be despi by the planter, if he were only sure of getting it at all tim It would be interesting to have planters' ideas as to

COFFEE SHADE TREE.

Sun-dried Erythrina Lithosperma loppings, &c., contain ton :—

61·50	lbs.	Nitrogen.
57·38	„	Potash.
14·92	„	Lime.
13·68	„	Phosphoric Acid.

Seed cured under Messrs. Sutton and Sons' advice.

Orders should be booked early for the 1898-1899 crop of seed f the parent trees of above analysis at Rs.6 per pound contain about 2,000 seeds. *Germination guaranteed.*

Only thornless variety extant, and is not procurable anywhere s from the

MANAGER, ARIENKOW ESTATE,

Shencottah

approximate percentage of total production that is merely "refuse" tea not worthy of being sold as *tea*.

The British Tea Duty. At a meeting of the Committee of the Indian Tea Association, London, held on Tuesday, the 14th inst., a special sub-committee of three members was appointed—viz., Mr. A. Bryans, Mr. C. C. McLeod, and Mr. W. H. Verner,—to meet the representatives of the Ceylon Association in London with a view to discuss the measures to be taken for obtaining a reduction in the tea duty, and to report to the General Committee. At a meeting of the Committee of the Planters' Association of Ceylon, held at Kandy on the 18th instant, correspondence with the United Planters' Association of Southern India on the subject of the reduction of the British tea duty and a letter from Mr. H. K. Rutherford were read, and it was resolved:—"That the letters received from the London brokers, and also Mr. Rutherford's to Mr. Young be published." We give them on another page.

Progress with Black Tea in America. The *American Grocer* of September 30th contains an editorial paragraph regarding Ceylon and extracts from an advertisement which a grocer who is pushing Ceylon teas in Salem, Mass. (David G. Whelton), is publishing in the local papers. The *Grocer* says:—"Down in old Salem, Mass., the people have got a taste of Ceylon and India tea. Those economical folk begin to understand that one pound of good machine-made tea will make three times the quantity of infusion that China sorts will. One of the Salem grocers talks about it as follows:—Mrs. Rorer on machine-made teas: 'They are undoubtedly more wholesome than the green-coloured teas, or those dried on copper plates.'—*Ladies' Home Journal.* Indian and Ceylon Tea is the only machine-made tea which is sold in the United States." But now the Ceylon representative has to push *green* teas also after roundly asserting that they are less wholesome than black!

The demand for Science. The Sub-Committee appointed by the Planters' Association of Ceylon to make arrangements connected with the Cacao Cryptogamist's investigations reported:—"The Sub-Committee desire, in handing in Mr. Carruthers' very able report on the Cocoa Disease, to urge on the Government the importance of the appointment of a permanent Cryptogamist, and would point to Mr. Carruthers' report, showing how much there is still to investigate in connection with parasitic fungi prevalent in Ceylon. Following this up the General Committee adopted the following resolution: That in view of the vital importance to this Colony of Agriculture, upon which its prosperity entirely depends, this Committee strongly recommends the inauguration of an Agricultural Department, and would urge on Government the appointment in the first instance of a Cryptogamist as well was an Entomologist." The attention of the Committee had, we may observe, been specially drawn to the great increase of Helopeltis on the Tea in the Udugama district.

The Sunflower. The *Produce World* says:—In a recent number we drew attention to the Potentialities of the Sunflower from a planter's point of view. Not only do the seeds of the sunflower provide an excellent food for cattle and poultry, and it stalks a fine fertilizer, but they also yield an oil which finds a ready sale. As a crop it is hardy, quickly matures, and demands but little attention. It takes far less from the soil than it adds. At Littlehampton, England, a farmer has obtained, from five hundred acres, three hundred loads, worth £10 per load, or £6 per acre. In tropical countries, even a much larger yield would be certain, while, with its quick maturity, the land could confidently be relied upon to produce either two crops of sunflowers or one crop of some other kind without becoming exhausted. Those in search of new products could do much worse than try sunflowers. European oil-cake manufacturers have begun to appreciate the seed; and we should be glad, at any time, to assist anyone going in for this to obtain a good market.

The Indian Tea Association. The American Market Fund amounts to Rs.94,614-1-6; several firms who subscribed last year have failed to make returns. The Kangra Valley Planters' Association lately decided to ask the Indian Tea Association to assist them in their efforts to obtain—(*a*) A reduction of Agents' and Brokers' commission. (*b*) Concession on steamer freights and wharfage charges. The Kangra Valley Committee were of opinion that, owing to present low prices of tea, reduction under these heads was necessary, and it was hoped that Agents and Brokers and all interested would feel that it was to their interest to assist in every way in their power in mitigating the adverse effects of the crisis through which the tea industry was now passing. The General Committee of the Indian Tea Association in the course of discussion on 3rd instant thought it would be well to point out that the Agents' and Brokers' commissions were much reduced by the fall in prices, and further that most Agents and Brokers were large shareholders in the concerns, and consequently suffered equally with other shareholders.

The Importation of Lady-birds. We take the following from the *Produce World*:—South Indian Planters have our entire sympathy in the partial failure of their attempts to import Australian Lady-birds to combat their insect pests. We hope, however, that initial failure will not discourage them from further efforts, and thus render useless the knowledge they have already gained in the art of fighting their enemies by the aid of nature. Other experimenters in the same field have met with similar checks and have afterwards succeeded, probably all the more thoroughly because of their experiences. We note there are pessimistic planters, and also scientists of standing, who fear the introduction of lady-bird beetles will prove worse as a remedy than the disease they are required to cure. Those who read our extracts from Miss Ormerod's report on "Injurious Insects and Farm Pests," published in our September issue, will have little doubt of the usefulness of the lady-bird beetle where aphis and scale exist, especially as the former insects have never been known to cause injury by feeding upon the leaves of plants. These conclusions are fully supported by Mr. Green, Honorary Entomologist to the Government of Ceylon, who believes that lady-bird beetles would be beneficial not only to coffee and tea, but to all cultivated plants in Ceylon. We hope our South Indian friends will make further efforts, and that they will succeed.

LETTERS TO THE EDITOR.

NITRATE OF SODA.

SIR,—I notice in your issue of 22nd instant a letter about nitrate of soda, in which the writer says :—"It is extensively used in growing green crops; an Engineer friend, whose brother is a Scotch farmer, told me that its intense powers of fertilizing the crop so drew the strength from the soil that when the field was laid afterwards in vetches, the part where the former crop had been treated with nitrate of potash (? soda), the crop was very poor from the exhaustive effect on the soil."

Nitrate of soda by itself is, of course, an incomplete manure, and in the case quoted, all the available phosphate and potash in the soil were used in conjunction with the nitrogen of the nitrate to produce the heavy crop. Had phosphatic and potash manures been supplied along with the nitrate, no such exhaustion of the soil would have taken place. It is only in this sense that nitrate is an exhaustive manure. Saltpetre is not so liable to produce exhaustion, as it contains potash as well as nitrogen.

It has been found at Rothamstead and other experiment stations throughout England and Scotland that nitrate of soda always gives better results in dry seasons than in wet.

COIMBATORE,
24*th Oct.*, 1898. } ALEX. M. NEILSON, F.C.S.

GENERAL ARTICLES.

TEA COMPANIES.

The New Dimbula Company (Limited.)—There is at least one very flourishing Tea Company. A telegram to Colombo states :—The report of the Directors of the New Dimbula Company, for the year ending June last, shows a splendid year's working. The expenditure amounts to £18,000 and the profits to £21,000. Last year's dividends are to be repeated, and £6,000 to be added to the reserve.

LATEST TELEGRAPHIC QUOTATIONS.

			LONDON, 26*th Oct.*	
Bar Silver	...	...	...	28
Bank of England Rate	...	...	...	4 %
Coffee—				
Nilgiri, average (B) size		...	...	65
Middling Ceylon	...	...	...	103
Mysore average (B) size		...	...	75
Stock	...	...	19,042	tons.
Fortnight's Landings		...	1,000	„
„ Deliveries		...	1,600	„
			NEW YORK, 25*th Oct.*	
Fair Rio Coffee	...	...	...	6
Futures—January	...	...	...	5.26
Silver—commercial bars	...	...	...	60⅞

FINE PLUCKING.

FORECASTS of the Indian Tea Crop predict an output of about 150 million pounds. In the present state of the tea market verging upon glut, this large crop will strengthen still further the downward tendency of prices, and it may not be long before we have planters praying for small crops for every one but themselves. Big crops and low prices, however, will not have been an unmixed evil, observes the *Produce World*, if they teach planters two things—to pluck finer and to plant with other things land which has ceased to pay in tea, either through deterioration of soil, or inferiority of bushes. It is notorious both in India and London that company managers, in order to show an increased output, do not pluck so fine as they would if the estates were their own. It is easy to explain to shareholders that the low prices obtained are the result of general over-production, and to pose as hard-working men, thwarted by circumstances over which they have no control. This system, however, has two drawbacks, both of which are streng ened by continued cultivation of deteriorated soil; it intensifies glut which keeps down average prices, and also sacrifices the hig prices obtainable for better grade teas. In present circumstan therefore, the imperative course for owners of private tea-garden to put down other paying cultures on lands exhausted for tea, to go in exclusively for quality on the remainder of the esta There is nothing beats quality yet; and the tea-drinkers of world are daily becoming more fastidious in their tastes. Priv planters will thus be able to take care of themselves, and let companies go to perdition in their own way.

TRAVANCORE TEA.

MR. H. DRUMMOND DEANE, of the "Stagbrook" Estate, Peermaad, ventured upon a new departure in the direction of pushing the of Travancore Tea on the local market, his main idea being to directly at the consumer by making it possible for the purcha to buy even small quantities of the produce straight from the Est With this object in view, he has appointed Messes. Marse and of this city, his local agents for supplying packets of the leaf c taining from ½ lb. to 2 lb. each of carefully selected teas of th different grades, viz., "Orange Pekoe," "Choice Pekoe," and "Pe Souchong," all of which are securely packed and made available extremely low rates. Orders of 60lb. and upwards will be atten to directly on the Estate, but smaller weekly or monthly supp of fresh leaf can be arranged for with Messrs. Marse and Mr. Deane, as some of our readers are doubtless aware, is no no at this business, for he has had something like twenty years of plant experience in Ceylon, where he was among the first to undertake manufacture of tea with the aid of machinery, his success in t line being amply attested by the fact that he has taken several pri medals for the excellence of his output, among them being two p miere awards at the Chicago Exhibition. His manufacture has found favour with Sir Arthur Havelock, to whom he was the c purveyor during the whole time that personage held the Govern ship of Ceylon. We have been favoured with sample packets of three grades of leaf now manufactured on the "Stagbrook" Est and have no hesitation in pronouncing them the very best of th kind we have ever tasted anywhere. This opinion is shared by to whom we have submitted samples for trial. Considering largely tea is coming into use among our Native fellow-subjects all classes, and taking into account the unquestionable excelle of the samples under notice, together with the low price at wh they are offered, we are disposed to predict a big "boom" "Stagbrook" outputs in the near future. At any rate, Mr. De deserves to be congratulated on his enterprise, and on the succ it bids fair to achieve.—*Western Star.*

LABOUR FEDERATION IN CEYLON.

THE following rules have been adopted by Ceylon planters wit view to the carrying out of a scheme of Labour Federation :—

(1) That a Labour Federation be formed under the auspices the Planters' Association of Ceylon with the object of checking steady increase in the amount of so-called coast advances.

(2) That a Committee shall be appointed annually to manage affairs of the Federation, five to form a quorum, and that it sh consist of six members to be appointed by the Chamber of Comme and of such members of the Committee of the Planters' Associati as are members of the Federation. The Chairman and Secretary the Planters' Association, if members of the Federation, shall ex-officio Chrirman and Secretary of the Federation.

(3) That Meetings, either General or Committee, shall be cal from time to time by the Chairman at his discretion, or when shall be requested in writing so to do by five members of the Co mittee or seven members of the Federation, and that proxies sh be admitted at the General Meetings.

(4) That no member of this Federation shall pay more for gang taken on from another estate which belongs to the Federat than the amount of the tundu.

(5) That no member of the Federation shall take on any gang cooly from a Federated Estate without the Federation tundu o discharge note granted by a member. Members of the Federati

before engaging coolies said to come from the Coast, shall fully satisfy themselves that they are *bonâ fide* Coast coolies. In the absence of a discharge note, no "notice" canganies or coolies are to be employed, without reference to the last employer.

(6) That all tundus given by members of the Federation shall be upon the form to be supplied by the Federation.

(7) That the members of the Federation bind themselves to abide by the rules of the Federation for one year certain, and thereafter to give six months' notice of their intention to resign membership, and that a list of members be published annually and issued to members.

COFFEE HYBRIDS.

The South Sylhet correspondent of the *Planter* writes :—

I can see no reason why a disease resisting coffee plant could not be raised by means of cross-fertilisation. It has been done in the case of other products, which have been attacked by disease. Although such a plant would succumb also in time, if the raising of new varieties was systematically continued, there always would be another variety to take its place. It always appears to me surprising that no tropical nurseryman and seedsman has taken up that branch of their business. We have Suttons and Sons the noted hybridiser at home, who always are supplying the Agri-Horticultural world with new varieties to take the place of those which from some cause or other are continually going to the wall. Notably among such disease resisting new varieties being continually brought out is the potato and the grape vine. Sometimes after such a variety is brought out which has every appearance of fulfilling its mission as it were; it developes one particular objectional point which completely nullifies all the other good points. In such a case it sometimes is put right by crossing the variety with one which happens to be particularly strong in the other's weak point. As I said above it is surprising that no tropical nurseryman has taken up this branch because to be of permanent utility it must be continuous. My garden being completely isolated I purpose going in strongly for cross-fertilisation, and shall closely follow the proceedings as they go on in Southern India. I would very much like to secure some seed of stenophylla. This Sierra Leone variety is one of the two indigenous West African species which in point of commercial value (according to Kew authorities) may prove a formidable rival of the Arabian coffee. It was regarded by Bentham in the "Niger flora" as a variety C. Arabica. The plant is described as an ever-green shrub or small tree up to 20 feet high. The youngest leaf shoots are pink. Leaves four to six inches long by 1 to 2½ broad, bright green and glossy above, paler beneath, flowers large white, 1 to 1½ inches across the corolla lobes, berry ½ an inch in diameter, globose seeds, hemisphere with a narrow ventral furrow. It grows very freely and yields quite as much as Liberian, but is somewhat longer in coming into bearing. It is of superior flavour to Liberian, and it is reported that Frencha deader has lately been selling it as best Mocha. It can be grown from 500 to 2,000 feet elevation. "Plants" raised from seed flowered at Kew in September 1895 in one of the tropical houses. It is said not to have thriven as well as could be wished at Dominica and Ceylon, but has done well at Trinidad and Jamaica as well as the Straits Settlements. I would think that such a variety as stenophyla crossed Maragogipe might give us something far superior to anything in cultivation.

The Wynaad and the Planting Industry of Southern India, by Francis Ford. Re.1.

The Planting Directory of South India for 1896. Re.1-8.

Sketch History of the Planting History of Wynaad, by the late Adolphus Arthur Wright. Re.1-8.

Report of Observations of Injurious Insects and Common Crop Pests during the year 1883, with Methods of Prevention and Remedy, by Miss Eleanor A. Ormerod, F.R.Met. Soc., &c. Re. 1-8.

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LIBERIAN COFFEE IN SUMATRA.

Liberian Coffee appears to be doing well in the Upper Serdang District on the East Coast of Sumatra. The Manager of Begerpang wrote on August, 1898: "That Begerpang *will be* the largest estate of Serdang is the verity, because I will have 400,000 trees till the end of the year, and plant 100,000 more during the next year.

"I would like to see in another article the cost price of one picul of coffee sold in Europe. I think that this price will not be more than fl 20 (guilders) a picul (including 5 per cent. rent of capital) on a fully bearing estate where the youngest trees are not less than three years' old. The price now in this bad season paid in Europe are fl 36 to fl 38 (guilders) a picul. B B estate sold lately 62 to 65 centimes per 500 gr. in Havre. This will be fl 38·75 to fl 40·62 per picul. So we can always reckon that we will get an average of fl 35 to fl 37 over a long period."

Almost at the same time a Ceylon Planter wrote concerning Liberian :—"The prices are too very bad! Here it sells at R20 per cwt. or R3·87 per bushel parchment."

Another estate in Sumatra has never netted during all this time of depression, less than $29 per picul.

The battle of the distances rages there. Regarding it, the Begerpang Manager writes: "I have myself adopted the distance of 10 ft. by 10 feet, and think that this will be the best. 12 feet by 12 feet would be very nice, but regarding the wealthy growth of our weeds, I would not be brave to use this distance. Less than 10 feet by 10 feet is certainly not enough. The soil in the lalang (illook) is quite the same as in the forest. Altitude 300—600 feet. Rainfall all right. Returns of 10 to 12 cwt. per acre after four years (two katties per tree) all right."

Another man says 12 by 12 feet. Yet another 12 by 12 feet with a quincunx, and again 14 by 14 feet with a quincunx. On his way to Ceylon, Dr. Treub, of Buitenzorg, had a glance at the district Unfortunately he had no time to go through it; but he is reported to have said that, taking into consideration soil and climate, 15 by 15 feet was the distance for Liberian coffee in Serdang. And yet another combatant slips in, declaring for 7 feet, and says :—"Take off two crops, and thin out till you are 7 by 14 feet. Afterwards thin out as occasion calls, until you are 14 by 14 feet. Some friends adopted my views, and are now growing in spirit. They confess that the returns are grand, more than could have been anticipated. But what cuts them to the heart is the prospect of having to cut out such magnificent coffee."

This planter says further:—"When I first knew Serdang three and-a-half years, ago, there were four coffee estates, all in the initial stage, aggregating about 600 acres. There are now twenty-three estates (possibly more) with fully 8,000 acres planted in coffee, and extension is still the word. Two or three estates there are that began with small capital when coffee was $40 upwards at Singapore, looking forward to easy borrowing times later on: and of course depression put these into a quandary for a time. But every one of them has struggled through the rapids."

ADULTERATED PEPPER.

The pending prosecutions naturally direct attention to the chemical constitution of Pepper, a subject in one way well known, but in another hardly examined as yet. The active properties of the spice depend upon the presence of an acrid resin, a volatile oil, and a crystallisable substance called piperine or piperin. The latter is said to have no colour, or smell, and to consist of piperic acid and a liquid colourless alkaloid known as piperidin, which boils at 106°C and then smells of Pepper and ammonia. The resin is very acrid, and the oil has the smell and taste of Pepper. The physical structure of

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[22-10-98—t.f.o.]

the corn is extremely complicated, and its cellular composition seems to have been carefully studied under the microscope. With all this detailed knowledge it appears to be wanting in practical application, What is wanted from scientific men is a guide to what constitutes the intrinsic value of Pepper. Is it the resin, the oil, or the piperin; or must all three be taken together, and, if so, in what proportions? Again, a very important practical question is, whether the various valuable constituents are equally diffused perpendiculalry through the whole of the corns, or whether they are to be found separately, in the various horizontal coloured layers, from the black rind to the innermost white centre. The local arrangement of the constituents is of great and increasing importance, from the immense amount of decortication and sifting that now goes on in the search, not for the best or most pungent, but for the whitest Pepper. It is certainly the distinct impression of those best acquainted with the trade that the whiter the Pepper the worse it is as a spice. Of course, if the public prefer a nearly flavourless white flour to a pungent dark Pepper, they get what they ask for, especially as these white powders, when honestly produced, are extremely expensive, and fetch a high and consequently relatively profitable price. But given a taste for white flavourless Pepper, it can be dishonestly or fraudulently satisfied without going to any great expense. The adulterator for years has found ground Rice a cheap and harmless commodity to vamp off as Pepper, but that is a substance which the analyst can readliy enough detect. The refuse shavings in making buttons from white bone or earth nuts would certainly not have been a substance which the ordinary mind would have selected for adulterating Pepper, but finely ground up it appears to yield an opening for the fraud on a large scale. Sam Weller's story of the sausage maker who mysteriously disappeared, and whose sad end was only traced after a lapse of time through the widow coming across one of the deceased's trouser buttons in her sausage, however, suggests an analagous test. It appears that the analyst can detect the button refuse in Pepper by incineration, because the ash is so suggestively large. There is a mysterious demand for empty walnut shells, in some quarters supposed to be devoted to spice grinding. Whether they turn into Pepper or into Nutmegs, or Mace, Cassia, Cinnamon, or what not, would be an interesting subject for inquiry. One would not think that Pepper at its present prices would so largely invite apt adulteration's artful aid. In the old times, when a peppercorn rent meant something tangible, it was different. Alaric the Goth, in A.D. 408, imposed a fine of 3,000lb. of Pepper as part of the ransom of the city of Rome. The Portuguese were led to discover and sail past the Cape of Good Hope in their search for cheaper Pepper. If Henry the Navigator and other great sailors had lived in these days of poivrette, button refuse, and ground rice, they would only have had to visit certain English spice mills, and the problem would have been solved, while the South African question would not be with us.—*The Produce Markets' Review.*

NOTES FROM *THE PLANTER.*

IT may not be generally known to planters, but it has been proved by repeated experiments that straw saturated with a solution of lime or common whitewash is incombustible. The fact is of great importance, especially as thatch is not only rendered fireproof, but more durable. A solution of alum has been tried, but, being soluble, the rain destroys its virtues.

Any of our readers who wish to send home, or preserve, impressions of tea or other leaves, will find the following the best method to adopt. Cover a sheet of white paper with a thin coating of grease, and then smoke it on the same side, over a smoky flame of an oil lamp. Lay the leaf on the sheet, so prepared, and fold the sheet, so that the smoked paper will press the leaf on both sides. Then remove the leaf, lay it on a clean sheet of paper, fold the paper over it, and press it heavily between the leaves of a book. When the leaf is removed, the impression on both sides of the paper will appear like a finished pencil drawing, if the process is carefully done.

It is said that timber posts can be made to last for a very great number of years by using the following recipe: Take boiled linseed oil, and stir in pulverised coal to the consistency of paint. coat of this over the timber, and the post will last as long a in the ground.

Dr. Hartig, who has made numerous experiments to dete the point, states that March and April are the best mont which to cut timber for building purposes, as it then contai lowest percentage of moisture, which he states to be forty- per cent. During the three previous months it has fifty-or cent., and the three following ones forty-eight. He further that properly seasoned timber should not contain more than twenty to twenty-five per cent. of moisture, and never less ten per cent. If the moisture is removed to a still greater e the wood loses strength and becomes brittle. Another auth states that if trees are felled as soon as they are in full lea allowed to remain undisturbed until the leaves dry up and fa the timber will be found well seasoned, the leaves having exha all the moisture. It is not stated where the doctor carried ou experiments, but the results given are instructive.

If trees are cut at any time after the trees are fully developed in most active growth, the branches and leaves being left on ti leaves completely wither, and the bark removed from the body tree, the best results will be secured for lasting timber. This European plan. The leaves draw out much of the sap, which con the most fermentable substance in wood, and that which furn food for worms, which prey on wood. By cutting off the bra and leaves as soon as the tree is cut down, the pumps are sto which would nearly pump the tree dry. In removing the ba expose to air and rain that portion of the wood richest in albumi and putrescible material, and which serves as the breeding of destructive worms. If this is washed and dried by natural cies, the quality of the timber will be much improved.

That there is a right season for felling timber, and that the of timber for building purposes largely depends on this season chosen, are generally admitted facts; yet the practice of diff peoples and districts is found to vary most essentially. Thus ac ing to a German writer, while the time for cutting timber for b ing is legally fixed in Germany in the months November to Jar in the Alpine districts of Switzerland and Austria, the best and durable timber for building is considered to be that which is f in the summer. The reason of this is that the wood of conif trees, fir, pine, &c., contains least moisture in May and June, a the felled timber is left on the ground till the following wint becomes well dried before it is taken away. However this ma with the coniferous trees of the mountainous districts, it is ce that the trees in the plains require different treatment.

The question has been subjected to a series of tests in Ger m and the result is sufficiently conclusive. In one case the experi was with four beams of equal length, breadth and thickness, and shaped in the same fashion, cut from trees of the same growing close to one another, and kept on the same dry spot only difference between them being that they were cut in different months. The timber felled in December was the stron of all; that cut in January was twelve per cent. inferior to point of strength, or power of bearing pressure; that cut in Fe ary was twenty per cent. and that cut in March thirty-eigh cent. weaker than the December timber. In another experi entire pine-trees were buried in a moist, damp soil; one sort been felled in December, the other in February. It was found the latter had turned rotten in eight years, while the former sixteen years before it decayed. A similar experiment with planks showed that those sawn from trees felled in March dec in two years, while planks from December timber lasted six yea

A planter correspondent writes:—"What is to be the outcon sixpenny tea; for this is what Sylhet and Cachar are at season? Does anyone know? Has anyone considered? Has an ever thought that this may last for a year or two? It is all very saying, "Oh, yes; this year I am bound to make a loss;" but if this goes on for three or four years? How many proprietors

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fork out? Another thing is, even if European proprietors won't go on, the garden will be put up for sale and bought for an old song by natives, and the places will go on yielding, and making bad tea—"muck," one might say,—do harm to the district, and prices will remain at the same level. We heard rather a novel idea suggested that—to remedy this, the amount subscribed to the American Fund should be diverted to buying up gardens such as we have referred to above and allowing them to revert into jungle, and thus reduce the outturn for a year or two; and there is sense in it, we think. But we will no doubt hear in our columns from our numerous correspondents what their views are. In a multitude of councils there is wisdom.

A great deal of excitement has been caused by "Sirocco's" utterance in the *Pioneer* re a new style of plucking to be introduced, to give a finer quality of liquor with a slightly reduced outturn. Some seem to think it would ruin the bushes, others are half-inclined to try it, and so on. It may be stale news to some, but it is well known that this system was tried in Cachar for several years, and then introduced into Sylhet; returned to Cachar following the vagaries of its initiator, but it never took on, and we believe the inventor, or whatever you like to call this enterprising planter, is just now in retirement. It is astonishing, however, jesting apart, how little the outturn fell short the first season; in fact for a time it was in advance of previous years. But the second and third year's expectations were anything but what were looked for, and we beleive the gardens so treated have now reverted to the former *dustur*, old-fashioned though it may be.

We were rather astonished to see in a contemporary, in one of the effusions signed "H. C.", that he puts down the profit of a tea garden in Sylhet or Cachar at a $5\frac{1}{2}$ anna average, at Rs.16 per acre, with a five maund outturn. Don't every planter in those districts wish he might get it! Five maunds per acre outturn, at Rs.27-8, reads a gross of Rs.137-8. The average local expenditure on a Sylhet or Cachar garden is about Rs.110 per acre. This leaves Rs.27-8 for brokerage, Calcutta charges, etc.; or, deducting the supposed profit of Rs.16, a balance of Rs.11-8 is left for these. Take a garden making, say, 3,000 maunds of tea, *i.e.*, 600 acres at five maunds, the Calcutta expenditure would only be Rs.6,900. Has anyone of our readers a share in such a garden? If so, he might give us an idea how this compares with actuals; our own experience is that it is barely half.

PRODUCE AND PLANTING.

Tea and Tea Drinking.

A series of trade exhibitions are held annually at the Agricultural Hall, and the grocers have held theirs this week. Dr. Goodfellow, who devotes his attention mainly to food products, and frequently lectures at these exhibitions, discoursed to the grocers about tea. From the grower's point of view he had nothing new to say. There were the usual platitudes about tea and tannin, and the evils of strong tea. He pointed out in praise of tea that the physiological effects of drinking properly prepared tea in moderation were those of stimulating the nervous system, increasing the circulation and activity of the sweat glands, but theine acted as a general rouser to the brain and higher nervous centres. The increased circulation produced perspiration, so that it was scientifically true to say that a cup of tea cooled, the increased flow of perspiration leading to loss of heat from the body. When tea was properly prepared, and not taken in excess, it was practically non-injurious, and was a necessity in order to meet the conditions of modern life. Badly-prepared tea contained an excess of tannic acid, and that body acted most injuriously upon the digestive system. Many attacks of indigestion were brought on by drinking so-called "strong" tea at meal times. Tea-drinking, when carried to excess, might also produce in those who were predisposed to nervous complaints palpitation of the heart, hyper-excitability, sleeplessness, and nervousness; and those who were naturally of an excitable nature and suffered from nervous complaints should be careful not to carry tea-drinking too far. The golden rules he laid down with regard to tea-drinking were: always to use good tea; use water which had just got to the boil; infuse about four minutes; do not allow the leaves to stand in the infusion; avoid second brews and the used tea leaves; avoid tea at the principal meal; and, if suffering from heart or nervous complaints, only use the very finest qualities of tea, with short infusion.

Really?

A writer in the *Standard*, in commenting on this lecture, thinks he can go one better than Dr. Goodfellow. He not only rails against tea-drinking generally, but he gives some advice gratis about the evils, as he calls it, of the excessive use of Indian and Ceylon tea in particular. He says, oracularly: "It is no exaggeration to say that tea-drinking at the present time is a great national vice. Our consumption goes up year after year, rapidly and without faltering. It does not follow the state of trade, like strong drink. Whatever else people do without they buy more and more tea. We indulge in it far in excess of all the world except China and some of our own colonies; but they both consume a very different kind of tea. The increasing consumption in this country has been accompanied by a change from Chinese to Indian and Ceylon teas. The former, which represented nine-tenths of our consumption only a few years ago, has now sunk to an insignificant fraction. This is a splendid thing for India and Ceylon—such a splendid thing that everyone is loth to say a word against it. But the truth is that excessive use of these teas is a very great evil. They have made their way, and ousted the China leaf, mainly because they are cheap and 'strong,' otherwise black. The average Englishman reckons his tea by the blackness, and the average housewife buys the kind with which she can make most cups of the standard shade, so to speak, out of a pound. Indian tea, and in a less degree Ceylon, will make half as many cups again of sufficient colour and 'twang' as China. It represents, therefore, a very substantial economy to the thrifty housekeeper; but the blackness and the strength are not desirable qualities from the dietetic point of view." Of course this exordium winds up by the advice to the working classes that rather than drink strong, black tea, they had better drink beer.

Last Week's Tea Sales.

The quantity of Indian tea catalogued for public sales amounted to 45,753 packages, and of these 39,700 were sold on the days of sale. The principal feature of the market, says the *Produce Markets Review*, referring to last week's sales, has been the firmness of the common descriptions, and although no actual advance can be recorded, holders show less disposition to accept former rates. This is no doubt due to the comparatively small stock of similar grades of other growths, and it is quite probable that the firmer tendency of prices may be maintained. On the other hand, any advance of importance at this period of the season would have a detrimental effect on the demand, and it must not be forgotten that the proportion of these sorts is considerable. Although common teas are firm, the medium kinds sold at irregular rates, occasionally in the buyers' favour, but this has been due in a great measure to the poorer quality of many of the teas offered. The better descriptions have, with few exceptions, also shown a declining tendency, the less desirable character of the teas being responsible in a great measure for the depreciation in values. Taking the teas generally, especially those from the Assam and Darjeeling districts, the depreciation in quality is very marked, and it is quite probable that the future imports from these gardens, although they may show an improvement later, are hardly likely to be up to the average of the earlier pluckings. The demand for Ceylon teas continues active in this market, and, with a strong feeling and with only moderate supplies, a further advance in prices may be expected. The lower grades are still much in demand, but no alteration in their value has taken place, very little being obtainable under $5\frac{1}{4}d.$ per lb. Medium descriptions have been in good demand, and higher rates were in some cases paid, both Pekoes and Broken Pekoes being well sought after. The quality generally has again been good, and the finest grades continue in request, while full prices have been obtained for all teas worth more than 1*s*. At the public sales 23,900 packages were brought forward, of which about 1,400 were withdrawn.

Information Necessary.

The Indian Tea Association should issue tracts about Indian Tea. They are needed. A correspondent sends us some particulars which throw light on the fancies indulged in by some ladies with regard to Indian tea. Our correspondent came across the report of a meeting of the National Union of Women Workers held in London some months ago, at which the president of that body, Mrs. Alfred Booth, delivered the following denunciation of India tea: "Now," said the lady, addressing an assembly of school teachers, "for the one or two articles of diet which teachers ought to bear in mind. The first is *Tea*. When I first came to England it was said that you could

always get a good cup of tea, but I am very much afraid that now we shall have to drop that, for it is very seldom that you can get a good cup of tea. We all drink Indian tea because it is a new industry introduced into this mighty Empire, but may I call your attention to Indian tea and ask you to study it from a scientific point of view, and find out how much more tannin there is in it than in China tea? You are, as reformers, in duty bound to consider this subject, and the effect upon the constitution of drinking Inian tea which has stood more than one or two minutes in hot water. A lady who has lived in China tells me the reason Indian tea is so much ranker than China tea; it is because it is grown in virgin soil, and in fifty years Indian tea will become delicate like China tea. We generally think virgin soil is the most delightful soil for anything to grow in, but until it becomes seasoned—fifty or sixty years hence—will you ladies please be careful when you are giving your lessons on drinks to dwell particularly on the tannin in Indian tea, and its deleterious effects on the constitution?" The tea-growers of China should be deeply obliged to Mrs. Booth, and the Indian Tea District Associations might with advantage send the lady a few facts in connection with Indian tea which would, unless she be hopelessly prejudiced, induce her to modify her opinion, and encourage the spread of sound knowledge. If the school teachers thus addressed have been carefully echoing her views, the tannin bogey will be very much to the fore again before long.—*Home and Colonial Mail.*

REDUCTION OF THE BRITISH TEA DUTY.

THE OPINIONS OF THE LONDON TEA BROKERS.

The following are copies of letters addressed to Mr. E. J. Young from London brokers and from Mr. H. K. Rutherford, which Mr. Young recently submitted to the Committee of the Planters' Association of Ceylon, with reference to the subject of reduction of the British Tea Duty:—

MR. YOUNG'S CIRCULAR LETTER.

Messrs....., Mincing Lane, London, E.C.

Dear Sirs,—A movement is on foot in Ceylon to memorialize the Chancellor of the Exchequer for the abolition of the Duty on Tea. Might I ask you to be good enough to give me your opinion as to the probable effect on the consumption of Ceylon Tea, if total abolition (4*d.*) or a moiety of the duty (2*d.*) be removed, and whether in your opinion the import of the China product would be increased thereby. With your permission, I intend to make use of your opinion before the Planters' Association of Ceylon.—I am, yours faithfully, (Signed) Edward J. Young.

Colombo, 12th July, 1898.

MESSRS. WILSON, SMITHETT AND CO.'S VIEWS.

Edward S. Young, Esq., c/o Messrs. Whittall & Co., Colombo, Ceylon.

Dear Sir,—We are in receipt of your letter of the 12th July, and in reply to your questions, we are of opinion that the Home Consumption of Ceylon tea would, in all probability, receive some stimulus, in common with that of other growths, from a reduction or total abolition of the duty; any alteration would, we think, affect every growth alike, with this exception, that inasmuch as the present fixed duty imposes a relatively heavier tax on low priced tea, any reduction or total abolition of duty would give considerable impetus to the exportation of common tea from China, which would, in that case, become once more an important factor in the trade, and interfere considerably with Ceylon and Indian tea in the market for low grade tea for "price." The total abolition of the duty and the consequent absence of proper Customs supervision would also greatly facilitate the importation of worthless or adulterated leaf, which has hitherto not been allowed to be entered for Home Consumption.

You are quite at liberty to use these remarks before the Planters' Association of Ceylon, and trusting that you will find them useful, —We are, yours faithfully, (Signed) Wilson, Smithett & Co.

41, Mincing Lane, London, E.C., Aug. 5th, 1898.

MESSRS. W. J. AND H. THOMPSON'S OPINION THAT THE BEST TEAS WOULD BENEFIT.

E. J. Young, Esq.

Dear Sir,—In reply to your letter of July 12th, we write to say that opinion differs very widely among those who are interested in the question as to the probable result of an abolition or reduction in the duty on tea.

If the tax were removed, we think probably the number of di butors might be increased, with the result that for the time at l demand would be brisk and clearances large, which would dep stocks to the benefit of importers—but it is by no means certain a large permanent increase in consumption would follow—seeing cheap tea, as a beverage, now is.

Some think the remission of the duty would render it more eas admit unsound and spurious tea. We think, on the contrary, vigilance of the Inspectors would not be lessened, and if it we stimulus could quickly be applied.

Looking at the question broadly, we incline to the opinion generally held) that abolition of duty would turn the scale in fa of the *best* as against the *cheapest* tea—thus directly encourage production of the finer kinds in Ceylon—but importers would expect to obtain more than a part of the total remission, and only for a time.— We are, Dear Sir, yours faithfully, (Signed) Jas. & Hy. Thompson.

38, Mincing Lane, E.C., London, August 8th, 1898.

MESSRS. WALKER, LAMBE AND CO. BID FOR TOTAL ABOLITION.

E. J. Young, Esq., Ceylon.

Dear Sir,—We beg to acknowledge receipt of your favour of ultimo.

In considering the points on which you ask our opinion, we th it well to record our figures of home consumption. Taking th from the Board of Trade returns, they read as follows:—

YEAR ENDING 31ST DECEMBER.

Home Consumption.	1895. lb.	1896. lb.	1897. lb.
Tea from India ...	116,343,314	122,941,096	124,534,194
Do. Ceylon ...	74,023,809	80,294,475	85,493,554
Do. China ...	26,201,374	19,831,678	17,242,247
Other countries ...	5,231,640	4,718,251	4,129,783
	221,800,137	227,785,500	231,399,778

Again taking figures just published and showing results for seven months of this year:—

SEVEN MONTHS ENDING 31ST JULY.

Home Consumption.	1896. lb.	1897. lb.	1898. lb.
Tea from India ...	70,162,579	71,852,593	76,127,862
Do. Ceylon ...	44,883,290	48,223,876	48,079,216
Do. China ...	11,228,204	10,452,219	8,688,588
Other countries ...	2,751,194	2,126,748	2,764,789
	129,025,267	132,655,436	135,660,455

We are of opinion that a decided stimulus would be given to consumption in this kingdom of Ceylon tea, if the present duty w reduced by 2*d.* per pound; but inasmuch as the conditions un which teas must be entered and warehoused, and handled for mere purpose of securing and collecting the duty, are necessa cumbersome and expensive, the value of such a concession would *much more than doubled* by a *total abolition* of the present duty of

We see no reason to suppose that China tea would be specially nefited by such changes in our duty, but assuming that the percent of increase in its consumption to be equal that of Ceylon tea, s increase would be about one-sixth of the Ceylon increase. We of opinion that such fiscal changes would still leave the gen position untouched, this general position being as shown in above figures that our use of Ceylon tea is increasing—our use China tea is decreasing.—We are, Dear Sir, yours faithfu (Signed) Walker, Lambe & Co.

23, Rood Lane, London, E.C., Aug. 12th, 1898.

MESSRS. SANDERSON AND CO. COLLECT OPINIONS.

E. J. Young, Esq., c/o Messrs. Whittall & Co., Colombo.

Dear Sir,—In reply to your letter of 12th July, asking us to g you an opinion as to the probable effect on the consumption Ceylon tea if the duty were abolished or a moiety thereof remo we have now the pleasure to inform you that we have discus these questions with several dealers and brokers in the Lane, find they are generally against the total abolition of the duty, would not object to a further reduction. If the Chancellor entir removed the duty, all checks on the movements of the article entir disappear, consequently no reliable figures could be obtain Doubtless the consumption of all classes of tea (not only Cey

would be increased, but we fear it might encourage the importation of the commoner productions from Java, South Africa, and other countries, where they are beginning to cultivate tea, and would most likely also induce growers to send us inferior qualities to a greater extent than they do at present.—We are, Dear Sir, yours faithfully, (Signed) Sanderson & Co.

37, Mincing Lane, London, E.C., 18th Aug., 1898.

MR. GOW TO WRITE LATER.

E. Young, Esq., Colombo.

Dear Sir,—We are in receipt of your favour of the 12th ult., addressed to our Mr. Gow, asking his opinion as to the probable effect on the consumption of Ceylon tea if the duty is abolished; also as to the effect of the duty being reduced 2*d*. Mr. Gow is now away on his holidays, but we shall have much pleasure in placing your letter before him on his return, when he will doubtless address you fully on the subject. We are, &c., (Signed) Gow, Wilson & Stanton.

13, Rood Lane, London, E.C., Aug. 12th, 1898.

MR. RUTHERFORD'S COMMENTS—THE STIMULUS GIVEN BY LOWERING THE DUTY.

My dear Young,—I had yours of 12th ult., and would have answered it earlier, but many things intervened to prevent me. I am afraid my opinions on this question of the abolition or reduction of the tea duty are of no more value than those possessed by the men around you.

We have not been able to get the Indian Association Committee to arrange a joint meeting to discuss the subject. They had a discussion on the question about a year ago, and as opinions vary very much as to the desirability of pressing it on the Government, they came to the conclusion to do nothing.

Opinions differ among the members of the Ceylon Association in London as to the advisability of having the duty either lowered or abolished; and I scarcely think, unless there is a considerable majority among the Planters in favour of taking action, it would be politic to ask Government to move in the matter.

I believe in all cases of a reduction of duty the consumer does not get any benefit for a year or so, but there can be no doubt in a few years' time we would see a much larger consumption of tea if the duty were abolished. The people perhaps would not actually drink much more than they do, but there would be more waste.

The annual increase of the population of England is 300,000, so that the natural increase of tea consumption would be only say 1,500,000 lb. (5 lb. per head); but since the duty was lowered the average annual increase has been 5,300,000 lb. so that we may claim an increase of 3,800,000 lb. per annum due to the reduction of duty.—Yours truly, (Signed) H. K. Rutherford.

Bude, N. Cornwall, 27th Aug., 1898 (Polmont, Kenley, Surrey).

DOES MANURING PAY?

Replying to the above question, "F. S. E." writes from Maskeliya to a Colombo contemporary:—

I am going to try to convince you that manuring does not pay, at present prices. With your permission, I will state a hypothetical case,—and when I say hypothetical, I mean that I have no books to show, but my figures have been obtained from men who are actually manuring, and who believe that it pays.

Let me assume that I have been superintendent of an estate for a number of years. The elevation is medium; the cultivated area is 400 acres; the yield 450lb. per acre; the cost of production 25 cents a lb.; the nett profit per lb. 9 cents; giving a total profit of R16,200·00. My factory is well equipped and correctly proportioned. My coolies are well-housed. In fact, my building accommodation is adequate.

Now, let me suppose that for the last three or four years I have been ordered to manure. Half the estate has been manured every year, and the effects of each application last two years, and no longer. Even your enthusiast will claim no more than that.

My yield has risen to 800lb. an acre (?). I find that the cost of production is slightly less than hitherto, but as a corresponding drop in the price of my tea has counterbalanced this, I need not take it into consideration. No doubt your enthusiast will say that here is a weak point in my argument at the very start; but, as I force my bushes with castor cake, which possesses few or none of the elements which produce strength and flavour, I contend that the quality of my tea has deteriorated.

Now, when I came to manure, I found that—

(1) The cost of manure (including application) was R60 per acre. I manured 200 acres; therefore, I spent R12,000.

(2) I had to take on another 100 coolies to pluck my flush. I advanced these coolies Rs.2,000, and the interest on this money, at 5 per cent., amounts to R100 per annum.

(3) My line accommodation had to be increased. I erected a new set of lines costing R1,000, and the yearly depreciation on these must be reckoned at R100.

(4) My withering space had to be enlarged. I extended my factory, spending R1,000 depreciation or R100 per annum.

(5) I had to buy more machinery, a new roller, a drier, shafts, pulleys, and belting. Altogether my machinery cost me R5,000. Depreciation R500 per annum.

I might also add that my weeds gave me more trouble, and that I had to take on another conductor; but, as these are days of retrenchment, I will allow these items to slide.

We find then that the cost of production, exclusive of manure, is 25 cts. a lb.

	R
320,000lb. tea at 25 cts.	80,000
Cost of manure and application	12,000
Interest on advances	100
Depreciation on lines	100
Do. factory	100
Do. machinery	500
Total cost of 320,000lb. tea at 29 cts. a lb.	92,800
Nett profits (at 5 cts. a lb.) on 320,000lb.	16,000
Original profits (180,000lb. at 9 cts.)	16,200
Balance in favour of manure	? ? ?

I contend, then, that manuring does not pay at present prices, and the sooner the system is dropped, the better it will be for the island. We have seen that a reduction of the tea estimate has forced up the price of tea ½*d*. Remove another ten millions (and I think I may safely say that ten millions of the tea exported are the result of manuring), and the price of tea will rise another penny.

I have stated my case, and now I will suggest a remedy against over-production. At present there is no duty on manure. Let the Government put such an *ad valorem* duty on artificial manures (*and* fertilisers) as will convince the manure faddists that their theories are absurd. After a time, the ten millions will vanish, but in the meantime, the proceeds of the imposed duty could be handed to the members of the Thirty Committee, to juggle with as they pleased. I would put no restrictions on them; I would merely suggest that, they should buy thirty long ropes (ready noosed in case of emergency) with part of the money.

As I said before, I am laying myself open to abuse in saying that the quality of tea deteriorates with the application of manure. But in the absence of any figures, I am content to rest upon this assumption till some one knocks it from under me.

"E. S. G." "adds his quota by giving the following

FACTS AND FIGURES.

Your correspondent, writing in the *Times* on the 19th instant appears to me to be wrong in his calculations, and the conclusions he arrives at are therefore erroneous.

For the sake of convenience I reproduce his figures, and alongside them will be found the necessary corrections:

F. S. E.	R
320,000 lb. tea at 25 cents ...	80,000
Manure and application ...	12,000
Interest on Advances ...	100
Depreciation on Lines ...	100
,, Factory ...	100
,, Machinery ...	500
Total cost of 320,000 lb. of tea at 29 cents a lb. ...	92,800
Nett profit (at 5 cents a lb.) on 320,000 lb. of tea ...	16,000
Original profit on 180,000 lb. tea at 9 cents ...	16,200
Balance in favour of manuring ...	?

CORRECTED FIGURES.		R.
180,000 lb. of tea at 25 cents	...	45,000
140,000 lb. of tea at 15 cents	...	21,000
Manure and application	...	12,000
Other items as per F. S. E.'s Memo.	...	800
Total cost of 320,000 lb. of tea at, say, 24 60	...	78,800
Nett profit at 9·40 cents on 320,000 lb. of tea say	...	30,000
Original profit on 180,000 lb. tea at 9 cents	...	16,200
Balance in favour of manuring	...	13,800

As will be seen from the foregoing, the error "F.S.E." has fallen into is in his estimate of the cost of obtaining the extra 140,000 lb. of tea which the manure has produced. The allowance I have made, viz., 15 cts. a lb. for this increase of yield, is sufficient to cover the cost of plucking, manufacture and transport, &c., and there is nothing else to enter against it, superintendence, weeding, pruning, &c., not being influenced by the additional crop—though the superintendent might be entitled to commission on the increased yield. The f.o.b. cost of the whole crop, therefore, instead of being 29 cts. a lb. as he estimates (which would be an abnormally high figure for an estate giving 800 lb. an acre) is reduced to 24·60 cts., leaving a margin of 9·40 cts. per lb. for profit, as against 5 cts. a lb. only before manuring was introduced. I have taken the figures "F.S.E." has furnished us with, not because I agree with all that they imply, but in order to show that even with a low selling price of 34 cts. nett, profitable results cannot fail to follow the application of manure if it produces an increase of 350 lb. an acre on the natural yield of an estate. Whether so large an addition can be reckoned on is open to very grave doubt. Personally I do not know of a case where such results have been produced, and anyone contemplating manuring operations in the hope of making the profits "F.S.E." foreshadows may be grievously disappointed.

The broad question as to whether manure pays or not is one which circumstances must decide, the element of chief importance being the selling value of the teas.

A REPLY.

ANOTHER planter sends the following reply :—

Your correspondent F. S. E. finds "that the cost of production is *slightly* less" on an increased crop, due to manure! It would be interesting to us all, if he would prove his case by giving us the expenditure for one, three or more years, on the 400 acre estate he instances, yielding 450lb. an acre without manure, or 800lb. an acre (shall we say only, 675lb.!) with manure.

One naturally hesitates before manuring a very weedy estate, so we will assume that the one in question is an ordinarily clean estate.

I would point out that in his calculations he will find, 1stly, that the actual cost—in these days of retrenchment—of superintendence, most of the contingencies, V. A.'s fees, general upkeep, weeding, pruning, tools, &c., will be practically the same, whether the estate is giving 450lb. or 675lb. per acre. It, therefore, follows that the cost *per lb.*, will be about one-third less on the higher yield. Secondly, he will probably expect his superintendent to pluck the heavier crop, at, say, 2 cents per lb., cheaper; and his manufacture, fuel, &c., should also cost a little less per lb. Thirdly, after his initial cost of Rs.60 an acre, say, half ton an acre, in his first application; he will probably find he will be able to reduce his cost to R.40, in his following applications, manuring only a third of the estate per annum, instead of half, and still maintaining his larger yield. The cost of manuring in the third year therefore equals only 2 cents per lb., supposing he applies only 133 acres x R.40, and secures a crop of 270,000lb. tea. Now, as to prices—contrary to "F.S.E.'s" assumption, I am of opinion that anything that improves the strength and vigour of the trees has a beneficial effect on the quality of the tea. This is very much a question of treatment, method of application of manure, time of application in relation to last pruning date, aud particularly, subsequent system of tipping, &c. "F. S. E." writes of castor cake as a "forcing" manure, surely this is dependent on the quantity applied, &c., However, we now look to our friend Mr. Kelway Bamber to provide us with a universal manure that will ensure strength and flavour, from any jat or stability of bush, on all soils, whether differing every 100 yards or not, on our enigmatical estate of 400 acres.

Does "F. S. E." consider that unmanured tea in Ceylon is improving or going back in stamina, and that some of his Maskeliya soil will grow tea for ever without cultivation?

I make the cost of production on the 675lbs. yield, 3 cents (1s. 2d.) per lb. tea *lower* than on the smaller yield.

TEA CULTIVATION IN SOUTH CAROLINA.

A "MESSAGE" FROM DR. SHEPARD.

LESS than ten years ago, and soon after the abandonment of last serious attempt to grow commercial tea in the Southern St it seemed worth the effort to Dr. C. U. Shepard, Summerville repeat the experiment on a much more diversified plan, in the that conditions might be found favourable to the successful deve ment of a new industry. It is not necessary at this time to e into a description of all of the "Pinehurst" tea gardens and the come of the various experiments instituted therein. It suffic state that all available sorts of tea, of soils and situations utilized, and very divergent results obtained which further inv gations may modify, but hardly reverse. All of which data are t published later, through the kind interest of the honourable Secre of Agriculture, James Wilson.

But in view of the chief motive underlying the work, and espec because of certain results recently established, which appare prove the feasibility of making commercial tea in the Sout States, it may be well to publish an account of the "Rose Gar patch of tea. Its site was an old piney woods pond, with a bl rich (in humus) but sour surface soil, overlying quicksand and lower, clay. The ground was thoroughly sub-soil drained, hea sweetened with burnt marl and deeply ploughed. About plants of acclimatized Assam-hybrid tea were set out at 6 by 6 "quincunx." Whether from the slowness experienced in overcon the original acidity of the soil, or from the comparatively fe growth of the seedling during the first few years in this res resembling its relative, the camellia japanica—little progress made from 1890, the date of the establishment of the garden, 1894, although some leaf was plucked from it in 1892.

Again the system of pruning practised at the start of the ex mentation, whereby clean stems were maintained, had to be a doned after the loss of many plants and a degree of disappointn which almost caused the cessation of further work in this directio

At present the garden contains about 800 vigorous bushes, one composed of many stems, the result of cutting out the ori main stem and inducing a luxuriant sucker growth. There are about 200 younger plants occupying the places where older died; they naturally produce less leaf. Altogether this garde less than an acre may be fairly regarded as containing the equiva of 900 plants in good bearing.

The output of green leaf from it has been as follows :—Cro 1892, 56 pounds; crop of 1893, 81 pounds; crop of 1894, 151 pou crop of 1895, 333 pounds; crop of 1896, 600 pounds; crop of 1 648 pounds; crop of 1898, 1,000 pounds to 1st September wit prospect of reaching almost 1,200 pounds by the end of the seaso

It is to be noted that there has been a material increase each over the preceding, amounting to almost, if not quite 100 per c with the exception of 1897, when a prolonged autumnal dro materially interfered with the leaf production. It is, of co impossible to foretell to what limits this expansion may extend b reaching that slight annual variation which marks the maturi the plant. But it would not be surprising if the outturn doubled within a year or two. Twelve hundred and sixty poun green leaf will afford 300 pounds of standard Pinehurst black te

On a basis of 900 plants in the "Rose garden," the production bush is five ounces of tea. If it were a full acre the yield w approximate 400 pounds. And if the plants had been place shorter distances apart, as is the practice in the Orient and at Pinehurst, the output per acre should be materially larger. average yearly production per bush in Japan does not exceed ounce; in China it is from one to two ounces; in India and Ce three to five ounces. In the last-named countries there are es which annually produce over 1,000 pounds of tea to the acre they constitute the rare exceptions; Oriental tea gardens us contain about 2,000 plants to the acre.

This gratifying productiveness of an experimental garden of al an acre affords good ground for the belief that commercial tea be grown in South Carolina in quantity quite comparable wit average yield of the most favourably situated Oriental countries. the "Rose garden" is not to be regarded as an exceptional re nor of difficult imitation. Two larger gardens, also formerly p woods pond planted with Darjeeling seedlings, promise succe

PEIRCE, LESLIE & CO.

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ESTATE TOOLS—		Rs.	A.	P.
Round Eye Felling Axes (steel), 4 lbs. weight	per doz. ...	20	4	0
Do. do. do. 2½ „ „ „	...	15	0	0
Pick Axes, 6½ lbs. (well steeled) ... ... „	...	16	8	0
Bill Hooks, (Barcutties) 12″ blade, bright steel „	...	18	0	0
Do. Kentish, with back, steel, 2¼ lbs. wt. „	...	16	0	0
Bushel Measures (Galvanized), Imperial Stnd. ...each	...	15	0	0
Buckets (Galvanized), various sizes ... from per doz.	...	16	8	0
Watering Cans, (Galvanized) "Nonsuch," 2 gals. each	...	4	0	0
Do. do. do. 2½ „	...	4	8	0
Steel Digging Forks. *Steel strapped all along handle.* 4 & 3 pronged per doz.	Rs. 39-0-0 &	33	0	0
Grass Knives, socket handle, steel ...	per doz. ...	12	12	0
Hammers, 6, 7, & 8 lbs.	per lb. ...	0	6	0
Handles, Pickaxe, 3 ft. long (English Ash)	... each ...	0	12	0
Do. 30″ long 3¾″ circ. (do)	... „ ...	0	6	0
Do. 16″ „ 3″ „ (do)	... „ ...	0	4	0
Do. Digging Fork	„ ...	0	14	0
Lining Ropes, abt. 250 feet	„ ...	8	12	0
Mamooties, Steel 10″x 8″ or 9″x 7″ abt. 4 lbs. wt.	per doz. ...	12	12	0
Do. Iron 10½ x 8½ or 9½ x 8 abt. 4 lbs. wt.	„ ...	7	8	0
Quintanies, Steel 15″ × 6,″ 5½ lbs. weight ...	„ ...	18	0	0
Do. 9½″ x 5,″ 3¼ „ „ ...	„ ...	14	4	0
Manure Pans, (Galvd.) 7″ deep x 18″ top x 10″ bottom	„ ...	23	4	0
Pitting Bars (Alavangoes), well-steeled points, 3″ spade end, 45″ long, 9 lbs. wt.	„ ...	16	8	0
Pruning Knives, English make, best steel, 4″ blade	„ ...	9	0	0
Do. Saws; do. do. 14″	„ ...	18	0	0
Seamless Bags (for coffee transport to coast) 42″ x 20″	„ ...	9	12	0
Shovels, round nose, T handle	„ ...	12	12	0
Tea Transplanting Spades, steel, sharp edge ...	each ...	2	8	0
Tea Sieves, brass No. 6, 8, 9, 10, 12 mesh	„ ...	6	0	0
Do. do. bottoms do.	„ ...	3	8	0

TEA REQUISITES—FOR PACKING.

CHESTS—MADE TO ORDER. *Deld. at Mettapollium, Palghat, Calicut.*

Full Chests 24 x 19 x 19 (outside) ½ in. planks	each ...	1	1	0
Half do 16 x 16 x 16 („)	do „ ...	0	13	3
Quarter do 14 x 12 x 10 („) ⅜	do „ ...	0	9	3

Any other dimensions at proportionate prices.

LEAD—BEST INCORRODIBLE. *Any other sizes obtained to order.*				
127 sheets 37″ x 22″	per case of 2 cwt.	32	0	0
or 218 „ 25″ x 19″	„ ...	32	0	0
„ 40 „ 84″ x 22″ for sides / 80 „ 21″ x 16″ „ tops and bottoms	„ ...	30	0	0
„ 72 „ 65″ x 19″ „ sides / 144 „ 14″ x 14″ „ tops and bottoms	„ ...	30	0	0
Solder (Sticks) per case of 1 cwt. Rs. 50, or per lb.	...	0	8	0
Soldering Fluid	per bottle ...	2	0	0
Hoop Steel ½″ (abt. 3,000 feet to the cwt.)...	per cwt. ...	15	0	0

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For Arabica. For Liberian.
Agents for:—MESSRS. WALKER SONS & Co., LD. *Price list and illustrated catalogue sent on application.*

		Rs.	A.	P.
Copper Punched Cylinder cover 4′ x 2′ ...	each ...	25	0	0
Do. Disc cover	„ ...	9	0	0
Do. do. for Liberian ...	„ ...	12	8	0

COIR MATTING—In rolls of 60 feet long x 3 feet wide.

Estate, Double, (coffee drying, etc.) Nos. 1 and 2, Rs. 2-8 &		2	4	0
Ordinary Bungalow Twill		7	0	0
Fine Machine-made Yarn		12	8	0
Superior Yarn		15	0	0

Coloured stripes to order. Samples sent on application.

IRON—GALVANIZED.

Continuous Iron. For roofing, etc. In rolls of 100 ft. x 2 ft. 28 G. (per ft., 7 as.) per roll ...				
Corrugated Iron sheets 24 G. 2 ft. wide (English) Lengths 5, 6, 7, 8, 9, 10 ft. / Approx. weight 14, 16, 19, 22, 24, 27 lbs.	per cwt....	10	0	0
Iron Ridging, 6 ft. x 6 inch lap. ...	per length ...	1	8	0
Bolts and Nuts, ¼″ x ¾″	per gross ...	1	14	0
Rivets (*abt. 64 to the lb.*)	per lb. ...	0	4	6
Washers, Iron (*abt. 70 to the lb.*)	„ ...	0	4	6
Do. Lead (*abt. 50 to the lb.*)	„ ...	0	6	0
Screws 2½ in. (*abt. 28 to the lb.*)	„ ...	0	7	0
Lead headed nails 2½ in. (*abt. 20 to the lb.*)	„ ...	0	6	0

NAILS—

Cut Rose Nails 1 in. (*abt. 500 to the lb.*) ...	per lb. ...	0	3	0
Do. 2½ in. („ 90 „) ...	„ ...	0	2	0

Wire Nails, French.

	1″	1½″	2″	2½″	3″	4″
℔ 1 cwt. keg Rs.	13/12	11/8	11/	10/8	10/	9/8
℔ pound annas	2¾	2½	2¼	2¼	2	1¾
Nails ℔ lb. (*abt.*)	400	200	160	100	80	35

Triangular Barbed Wire Nails.

	1″	1½″	2″	2½″	3″	4″
℔ 1 cwt. keg Rs.	14/	12/	11/	10/8	10/	9/8
℔ pound annas	2¾	2½	2¼	2¼	2	1¾
Nails ℔ lb. (*abt.*)	500	290	160	110	75	40

ASPHALTE	... per ton ...	69	0	0
PORTLAND CEMENT—John Bazely White and Bros. "Whites" Best	℔ barrel of abt. 375 lbs. net ...	11	12	0
Sole Agents for S. Canara, Coorg, Malabar, Coimbatore, Travancore.				
COAL TAR, Best	℔ barrel of abt. 4 cwts. gross ...	20	0	0
WINDOW GLASS—per case of 100 sq. ft. (all sound) 12×10, 14×12, 16×14, 18×14, 20×16, 22×18, 24×20, 28×24, 36×24 and 36×30.	...	15	0	0

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rivalry within a few years. And yet others appear to be awakening to a more vigorous productiveness.

The cost of a crop of 300 pounds of tea from the "Rose garden," by reason of its greater productiveness, is much less than that from Pinehurst, as a whole. And yet it is evident that very material reductions might be secured were its area even only ten-fold enlarged, much more so did it contain 100 acres. The following tables show the actual cost of the several operations in the growth, picking and curing of the crop of 1898 in the Rose garden, as also the estimated and materially reduced expense for the same rate of production on a larger scale.

	Actual cost per pound.	Possible reduced cost per pound.
Pruning	3 c	2c
Manuring	3 c	2c
Cultivation	1½c	1c
Leaf picking	14 c	8c
Factory work	6 c	3c
	27½c	16c

A glance at the above table shows that the chief expense is that of gathering the leaf. Experience has demonstrated that a smart lad or grown girl can pick from a good "flush" twenty pounds of green leaf in ten hours, or, say, enough to make five pounds of tea. This should be done for 30 cents, or at 6 cents per pound. The supervision in the field will add 1 cent. With immature plants or poor "flushes" there is necessarily much more labour to be spent, and consequently more time in securing the same amount of leaf. Again, the "fineness" of the plucking materially influences its cost. The picking of a coarser and larger leaf or two from each shoot greatly increases the yield and lessens the cost. But with a medium leaf picking and Southern localities where labour is cheap, with an outturn of at least 400 pounds of tea to the acre, this expense should not exceed 8 cents per pound.

There remains to be considered the cost of superintendence and the fixed charges for the outlay in the establishment of the garden and its maintenance until self-supporting. As to the former, the cost will largely depend on the size of the crop; on a production of 100,000 pounds per annum it should not exceed 2 cents per pound of tea. The expense of putting the land in suitable condition for a tea garden should not exceed that for any other intensive crop. The cost of raising and setting out the tea seedlings will vary from $25 to $50 per acre, according to whether raised from domestic or foreign seeds. In the establishment of a large tea estate the initial expenses are necessarily heavy, but it should be borne in mind that once well done it is practically for all time. The best Japanese tea is said to be gathered from bushes 200 years old.

The leaf plucked from the "Rose garden," as indeed from the whole estate, is fine, *i.e.*, it very rarely consists of more than the Pekoe tip and two leaves, and then only to the first Souchong. Heretofore, and without the aid of a protective duty, it has been possible to sell all of the Pinehurst (black) tea at $1 per pound retail. It remains to be seen whether the duty will be repealed, now that hostilities have ceased, or, if not, what effect it will have on the price of the better grades of tea. But after all deductions—and they are not to be under-rated—it must be realized that there is a wide margin of profit between the cost of one pound of "Rose garden" tea if produced on a large scale, say 25 cents, and the wholesale price of an equally good imported tea, say 50 cents. A profit of 10 cents per pound means a profit of $40 per acre on an annual production of 400 pounds of tea. And higher profits per pound with increasing yield per acre will rapidly swell the income.

The "Rose garden" has apparently demonstrated that commercial tea may be successfully grown in South Carolina. The utilization of this knowledge may be along several lines, but all of them involve the erection of a suitably equipped factory, costing from a few thousand dollars upwards, according to the proposed scale of operations. In some countries the bulk of the tea leaf is raised by small farmers, who at the most only prepare it sufficiently to insure its safe delivery at factories in the larger, often distant, towns. Or in other districts the extensive tea estates erect factories sufficient to handle not only the output of their own gardens, but also that of the smaller producers in their neighbourhoods. As in all other branches of manufacture, the modern tendency is towards centralization and the cheapening of processes by increasing the volume of production. Machines have been successfully substituted for about all manual operations in the manufacture of black tea, and thus it has about that a well-equipped factory is indispensable in ma that sort.

The preparation of green tea still involves much and sl manual labour, and it is, therefore, questionable whether it ca profitably produced in this country in spite of a decided nat preference for this sort. Machines adapted for making this cla goods will surely follow the commercial realization of the tas the tea-drinking public.—*Indian Planters' Gazette.*

DEPRESSION IN THE INDIAN TEA INDUSTRY.

The one absorbing topic of the day just now, when the tea se is fast drawing to a close, is the present general depressio industry, and its future, which is undoubtedly shrouded in uncerta Hope as one may for some amelioration of the present situa we cannot disguise from ourselves the fact that we are face to with a crisis, and that a severe one, for tea.

As is natural in all circumstances of a grave question, discus are rife and diverse, and I incline to the view that a reasonable ex tion of the cause of our difficulties may not be without its advant when such a view is culled from an experience born of interc with those concerned with tea for the last twenty-five year would review, primarily, the antecedent events which have for years past been leading us gradually, but surely, to disas results, which have now culminated in a crisis.

In the first place the old or rather original idea was that onl land and lands with stiff soil required drainage, and even thi never carried out upon any definite system. By definite syst mean that the laying out of the drains with due considerati the gradient of the land and the physical nature of the soil wa regarded in past years, while the necessity of professional a was absolutely ignored, if not actually scouted. Subsidiary t initial error, so to speak, we find other disturbing factors v have borne a prominent part in accelerating the present depre in the tea industry. The chief of these, as we all know, has over-production by widespread extensions and the opening o large tea tracts.

This has unquestionably added to the weight of the millsto trouble which is dragging us down and has led to a glut in the ket of our commodity, which will be no easy matter to over so long as indiscrimnate supply exceeds the demand. perfectly true that much of the extensive tracts of which have been gradually opened out in past years by ca ists and promoters has not proved altogether unsuccessful; it is true that such opening out found favour in the encourage afforded by the falling off in the consumption of China teas a corresponding appreciation of and demand for Indian teas; bu question arises whether our ambitious and rapid progress in country has not carried us beyond our depth with unlooked-fo alarming celerity. Capitalists and purchasers at home and ab have, with wide and overstocked markets to select from, for years past been concerned with obtaining the best products at inal rates to the exclusion of inferior teas. This view leads t consideration of the wisdom of any future opening out or exte of tea tracts without professional opinion and advice; but I not anticipate my review of this part of the subject, and will t fore refer to the remaining factors, which, to my thinking, militated to some extent against the financial prosperity of th industry in late years.

It would be inconsistent, if not erroneous, to assume that the of exchange is one of the main opposing factors, though it is dif to resist the conviction that it has had some bearing upon the que of the present depression in tea. We have noticed that exch has played a part in the financial economy of our industry, but a small part relatively when we consider the pre-over-produ years; so this really may be set aside as *argumentum ad judiciu*

The several other adventitious circumstances which of late y have combined to wipe out the reducible or microscopic marg profit may be enumerated as follows, viz :—

1. Unseasonable weather and late monsoons.
2. Short seasons resulting therefrom.
3. Drought and injury to plants from various causes.
4. Inferior quality and small outturns of tea.
5. The impossibility of reduction of working expenses and of manufacture.

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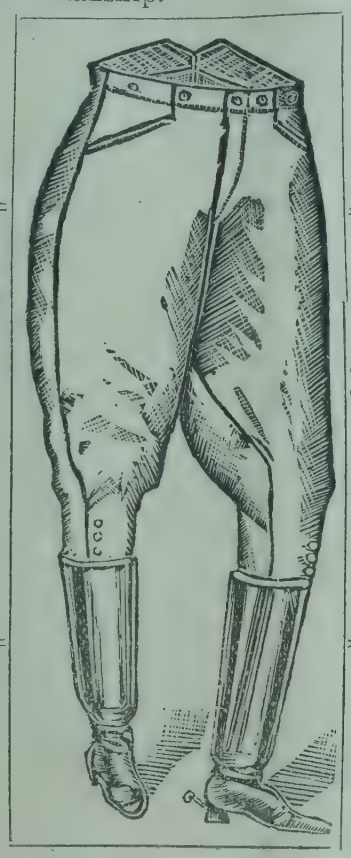

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[w. 15-10-98—14-1-99.]

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Without wishing for one moment to reflect in any way upon the planting community generally, or to detract from the valuable work which has been effected by the majority of our best men engaged in the tea industry, I cannot but think if they had been allowed a freer hand, and proprietors had insisted upon the necessity of professional advice in case of important extensions or the opening out of new grants, happier results than we now have to face would have resulted from the adoption of such procedure.

I may, I think, without fear of contradiction or controversy, state that where tracts of tea have for some years been opened out gradually under what may be termed the modern system, or scientific principles with professional advice, the results have been far from unprofitable. We have but to turn to some of the more prosperous gardens in the Assam Valley for a proof of this, and in this connection we find, indeed, that professional aid has, in the instances of even old estates, been wonderfully instrumental in their salvation. In evidence of this there stands out notably the case of a practically mediocre estate in Assam which was entirely resuscitated by the experience and energy of a well-known planter who recognized the expediency of taking professional advice; this garden is at the present time in a flourishing condition, and bears testimony to the value of the modern system of cultivation.

Turning now to the more scientific aspects of the subject-matter under review, or in other words to the modern system already referred to, physiology teaches us that the food has to travel to the plant, and not the plant to the food. The whole of the mineral and some portion of the organic substances that are necessary for plant food are obtained from the soil. A plant can only take up its food f solution, and hence for the land to yield properly it is essential t both water and air pass through it freely and rapidly. This can take place unless the land be thoroughly and systematically drai The ultimate maximum yield of a bush, other things being eq depends entirely upon the number of cubic inches of root space are at its disposal. It is not advisable to increase this by mak the distance of the bushes apart more than five feet.

The only other means available is by bringing the soil and sub into such condition that the roots can penetrate to a depth of five six feet, and this is only attainable by very efficient deep hoeing f the commencement of the garden and by thorough subsoil drain

It is now generally recognised as an axiom that all lands (no ma what their contour or the physical composition of the soil), if they suitable for growing tea as a successful commercial enterprise, n be thoroughly drained: this applies to plateaux, rolling and low- land with a gradient up to 1 in 15 as well as ordinary flats.

Survival of the Fittest.

Tea concerns commercially may be placed in two categories- those which have already exhausted their capital and are unabl raise more to carry on with, and (2) those in which the far-se promotors kept a reserve of capital to tide over the rainy day.

Until recent years the professional prospecting for tea land been very much neglected. There can be no doubt that tea c mercially is still a sound investment, therefore those with cap need not be frightened by the seemingly alarming views which be held by pessimists, nor by the theories of unsuccessful propriet

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[w. 1-10-98—t.f.o.]

still it cannot be gone, or rather rushed, into as in former years, and due regard must be paid to selection of land and its treatment in accordance with modern ideals. There is still first-class tea land available in the province, and there can be no question that this only can possibly be made to pay in the present day. It is much better to take up first-class land at an initial cost of twenty rupees an acre (planters will understand what is comprised in these figures) than to obtain third class and at three rupees an acre, as the difference in annual yield is often 3 to 4 maunds per acre and the difference in sale price of the teas from 2 to 3 annas per pound. There is one chief point which should not be lost sight of, and that is that in taking up tea land the cheapest method in the long run is to obtain the highest professional advice available.

Verily "the old order changeth" and must of necessity fade into insignificance, but there is no reason whatever now, because we are face to face with a crisis which has brought about a depression in tea that we should fall into a state of morbid or hopeless despondency. And this now brings me to the subject of reduction of establishments. So far as can be ascertained, the powers that be in tea, apparently, propose to discount the effect of deficiency in crop, quality, and market value by discharging or dispensing with the services of present managers and filling their places.

This is a very weak policy, and is to be deplored upon several grounds, but on this point there is no necessity to dilate: it speaks for itself. However, as a set-off to this, while agents are setting themselves to reduce expenditure on tea gardens, there is no suggestion of any self-denying ordinance to cut down the Calcutta charges. For instance, to take a few figures roughly, let us say that to every pound of tea calculated to cost three annas six pies in manufacture, the agents add on two annas to cover charges in Calcutta for fees, &c. This would bring up cost of production to 5½ annas, and as, at present rates, tea sells at, say, 5 annas per pound, the natural result is a loss. It is a fair and reasonable proposition that agents should be content to decrease the present preposterous charge for their services by 25 per cent., and so help to meet the present difficulties with which we have to contend. There is no knowing what may be in store for us in the future, and for all we can say even next season may bring some material improvement to the depressed condition of our industry.

No, it is but a poor makeshift, and very false economy to dispense with the services of managers of tried ability and with many years' experience. It is, to use a metaphor, merely killing the goose that has laid golden eggs, for though at present there is a temporary stagnation in trade, there may be a sudden improvement in the condition of affairs.

And meanwhile what about the new broom which is to make such a sweeping alteration in affairs? Without going any further, one might apply as a simile the scriptural lesson which teaches the folly of patching an old garment with new cloth. It is rumoured that there will probably be about two hundred planters out of employment in Calcutta after the close of the present tea seasons. This is, no doubt, a deplorable state of affairs, and I hope will not prove to be true. We hear of a number of changes that are to be made in the Surma Valley and a number of men are leaving the field altogether, but let us hope only *pro tem.* Doubtless a similar state of affairs exists in Assam and the Duars, so the outlook for the moment is anything but bright for members associated with tea. . . . .
—NEFIRA CACHARITE in *The Englishman.*

DISTRICT ASSOCIATIONS.

CENTRAL TRAVANCORE.

A GENERAL MEETING of this Association was held at the Penshurst bungalow at 10 A.M. on Saturday, October 1st, when there were present:—

Messrs. F. Bissett, L. W. Crawhall, A. D. Deane, R. W. Cole, R. W. Courtenay, H. Holder, R. S. Imray, H. M. Knight, L. G. Knight, E. Latter, D. Macarthur, B. Laurie, A. E. Veale, F. M. Parker (*Chairman*), H. W. Baker (*Honorary Secretary*).

Proceedings of the last meeting were taken as read.

Read correspondence since last meeting.—*Approved.*

Cattle Trespass.—*Proposed* by Mr. H. Deane, "That the attention of the Government be respectfully called to the damage done to new clearings by the numerous herds of cattle from Kottayam and other low country places which roam about Sirkar and private lands, and that as a means of relief the Government be petitioned to erect a pound near the Church Hill, in addition to the one at the Araday, which is not only very small, but placed at such a distance from many of the estates as to afford no relief.—*Carried.*

Tea shipments per s.s. "Nurani".—*Read* and *approved* letter from the Secretary, U.P.A.S.I., regarding correspondence on the subject. *Proposed* by Mr. H. M. Knight, and *seconded* Mr. H. Deane, "That the Association approve of the action taken, and trust that the matter will not be allowed to drop, and that copies of the correspondence be forwarded to the Indian Tea Association in London, as it is considered by the Association that the action of the Agents in Bombay is quite unwarrantable."—*Carried.*

Currency Commission.—*Proposed* by Mr. H. M. Knight, and *seconded* by Mr. Laurie, "That this Association wishes to express its approval and thanks to their late Honorary Secretary, Mr. Granville Lowther Acworth, for the able manner in which he acquitted himself before the Currency Commission, and for the time he devoted to the subject.—*Carried unanimously.*

With a vote of thanks to the Chairman, the meeting closed.

PEERMAAD,
1st October, 1898.

H. W. BAKER,
Hon. Secy., C.T.P.A.

WHEN YOU CANNOT SLEEP.

So far as outside matters go a man can sleep almost anywhere. Habit settles it. A sailor sleeps in the forecastle of a tumbling ship, and a soldier alongside of a big gun in a bombardment. One of the best night's sleep I ever had was in the open air on a prairie in Western America, the grass for a bed, a blanket for a pillow and my horse for company—the only living thing within fifty miles of me. But, pshaw! that was luxury compared with some situations in which men sleep sound as bricks in a wall. Habit does it as we said.

Hence, Mr. Fred. Downs' loss of sleep had nothing to do with his being a commercial traveller. Commonly, these useful gentlemen can sleep wherever night overtakes them—in hotels or in trains, in quiet country towns or in the midst of a racket fit to drive anybody else fairly wild.

No, it was not outside, but inside matters that kept Mr. Downs awake. He tells it this way: "In August, 1890, I found myself a way below par, like many stocks and securities. I had no appetite, my stomach was cold and sour, and there was a nasty taste in my mouth that nearly made me sick. I tried eating light and simple food, but I had intense pain after it at the chest and sides, and between the shoulder-blades.

"Instead of sleeping I rolled about the bed all night long. I felt really more tired and weary than a man does after a hard day's work."

[At this point in Mr. Downs' story we beg to insert the remark that the sense of fatigue or exhaustion is the result of a loss of strength: and that it makes no odds at all whether the strength has been used up in labour or has dwindled away through lack of nourishment. Pump the water out of a cistern or let it leak out, it's gone just the same.]

"I got very weak," says Mr. Downs, "and had great difficulty in following my business as commercial traveller. I tried medicines right and left, as anybody would, but none of them seemed to hit my case. In this way a year went by. At last I made up my mind to see if your remedy would help me. I had often heard it well spoken of but never before had occasion to use it. I took it a few weeks and it did me a lot of good. My appetite improved, and my food agreed with me. For this good reason, I kept on with it and was soon as well as ever. It also cured my wife of indigestion from which she had suffered for years. (Signed) Fred. Downs, The Rookeries, Bradford Road, Brighouse, Yorks, Dec. 28th, 1893."

Mr. Samuel Dunn had the same trouble. We needn't repeat the general symptoms, as they were identical with those described by Mr. Downs. Alluding to the effect on his nerves, Mr. Dunn says that for eighteen months, dating from the spring of 1885, he did not know what it was to have sound natural sleep. On that, as we might expect, he grew so weak he often had to leave his work for a day or two at a time. He took the usual assortments of drugs

and medicines without getting any more good from them than Mr. Downs had done. It was always that way. Medicines don't cure because they *are* medicines; *they must be adapted to an understood disease*; that's the common sense of it.

"Finally," says Mr. Dunn, "I got so low that I felt I must have relief if I was to live much longer. In October, 1886, I began using Mother Seigel's Curative Syrup, and in a few weeks I was well, and have been so ever since. But for the good luck that let me know of the Syrup I might have been dead before this. (Signed) Samuel Dunn, 2, Well-field Street, Mill Lane, Warrington, December 29th, 1893."

We mustn't forget to say that Mr. Downs was cured by the same remedy of the same complaint—indigestion and dyspepsia—and if there is anything on earth that murders sleep as that does, we haven't heard of it. If Mother Seigel's Curative Syrup had no other merit, it would deserve the gratitude of mankind on account of its power (being no narcotic) to seal up aching eyelids and lock weary senses in forgetfulness.

MARKET REPORT.

COFFEE.

Messrs. Wm. Jas. and Hy. Thompson's Report of the Colonial Markets for the Week ending October 5th, 1898, states :—

Bank Rate 3 per cent. Bombay Exchange closes at 1s 3 15/16d. Brazil Exchange 8 1/32d. Rupee paper 3½ per cent. 62⅝. Silver 27 13/16d per oz.

A rather steadier demand has prevailed at auctions during the past week, the moderate supplies being well competed for. The few lots of fine Plantation Ceylon, Columbian and Guatemala sold well at very full prices. Brazil markets are steady.

According to Messrs. G. Duuring & Zoon, the stocks at the European ports on the 1st inst. showed an increase of 2,750 tons, and the total visible supply an increase of 14,730 tons, being estimated respectively at 205,050 tons and 402,800 tons, against 203,800 tons and 387,070 tons on the 1st September.

Futures close quiet at an advance of 3d to 6d per cwt., viz. :—Good average Santos in Havre, December delivery, fcs. 39, in Hamburg pf. 32¼ and No. 7 low ordinary Rio in New York $5.75.

Daily receipts averaged 12,000 bags in Rio and 24,500 bags in Santos.

CINCHONA BARK.

At the Dutch Sale, held on the 29th September, in Amsterdam, the large supply of 8,137 packages was offered as compared with 7,500 packages at the August sale, and 6,600 packages in July. A good demand prevailed, and nearly the whole of the supply was sold at steady prices, the average unit realized being the same as in August, viz., 4·05.

Sulphate of Quinine unchanged, steady, at 10d per ounce for spot.

TEA.

Messrs. Gow, Wilson and Stanton's Indian, Ceylon, and Java Tea Re dated October 7th, 1898, says :—

QUANTITY BROUGHT TO AUCTION IN LONDON

FROM 1ST JUNE TO DATE.

	Indian.	Ceylon.	Java.
1898-1899.	433,324 pkgs.	448,315 pkgs.	16,677 pkgs.
1897-1898.	429,048 ,,	483,406 ,,	16,500 ,,

52,105 pkgs. Indian
18,440 ,, Ceylon
1,033 ,, Java.
} Total 71,548 packages were offered in public tion this week.

Deliveries of Indian Tea during September show an increase of over million pounds above September last year, and five million pounds f the commencement of the season. The stock of this growth, in Lon has for the first time this year fallen below the corresponding pe of 1897.

Indian. No material change has taken place in the market, altho here and there a slight weakness was apparent. The official wire g exports to U. K. for second half of the month as 11,750,000 lb., aga 10,900,000 last year, making the quantity from 1st April to end of tember 69,917,000 lb. agst. 69,050,000 lb. Avgs: "Poobong," 1/ "Amal T C Nagri," 1/6¼; "Dooteriah," 1/6.

Week's average of tea sold on Garden Account 1898, 40,020 pkgs. 8·33d. 1897, 32,750 pkgs., av. 8¾d.

Ceylon. Offerings were somewhat smaller, the market for all gr was strong, the better quality of recent arrivals continuing to impa good tone. The official wire gives exports to U. K. for Septembe 7,500,000 lb., against 6,250,000 lb, last year, making quantity from January to end September 74,500,000 lb, against 77,500,000 lb. estimates the quantity available for October as 7 to 7½ millions. Av "Amherst," 1/1; "Ragalla" & "Troup," 1/0¾. Average 8·42d., aga 8¾d. 1897.

Ceylon Tea sold on Garden Account 1st Jan. to date 1898, 887, pkgs., av. 7·76d. 1897, 877,376 pkgs., av. 7·66d.

		1898.	1897.	1896, 1
PEKOE SOUG.	(Ordinary leaf; fair liquor) ...	6½d	6¾d	6¾d
PEKOE	(Ordinary leaf, little twist; fair liquor) ...	7¾d	7¾d	8½d
PEKOE SOUG.	(Rather bold leaf; indifferent liquor) ...	5¼d	5½d	5½d
PEKOE	(Somewhat bold leaf; indifferent liquor) ...	5⅝d	6¼d	6½d

Java. The Javas passed with good spirit but without material alt tion in value.

Bank Rate 3 per cent. Exchange on London three months sight Calcutta 1/4⅛. Colombo 1/4⅛.

PUBLIC SALES OF SOUTH INDIAN TEA.

(AVERAGE FOR ALL INDIA 8·33d.) *October 7th.*

GARDEN.	Total.	Average.	Broken Org. Pek. or Flowery Pekoe.		Pekoe and Unassorted.		Broken Pekoe.		Pekoe Souchong.		Broken and Souchong.		Fannings, Du and Various	
	Quantity	Price.	Quantity	Price.	Quantity	Price.	Quantity	Price.	Quantity	Price.	Quantity	Price.	Quantity	Pric
Neilgherry ...	**145 p**	**5·75**												
C ...	12½c	5¾	...	...	12½c	5¾	...	...	...	...	...	...	...	...
Dunsandle ...	133 p	5¾	19½c	6	...	...	9½c	5¾	98b	5½	...	...	7½c	5
South Wynaad ...	**124 p**	**5·82**												
Erramaculla ...	89 p	6¼	...	...	34½c	6½	25½c	8¼	16	5¾	14	5	...	...
Perindotty ...	35	5	...	...	25	5¾	...	...	...	...	...	...	10	3
Travancore ...	**305 p**	**5·40**												
Chuilka ...	41 p	5¾	19½c	6¾	9	5¾	...	...	13	5¼	...	...	...	...
Hereford ...	119	5¼	49	5¼	10	5	20	7	38	4½4¾	...	...	2	3
Kinmylies ...	72½c	5½	...	...	64½c	5½	...	...	8½c	5	...	...	...	...
Mahandragherry ...	73½c	5½	...	...	65½c	5½	...	...	8½c	5	...	...	...	...

IN AUSTRALIA.

The feature of the week was the auction sales of Indians, at which over 2,500 packages were offered and cleared at rates showing an advance of about 5 per cent. on fine and 7½ per cent. on low grades, finest qualities remaining on a parity. Privately the demand has also been good.

Ceylons, owing to limited supplies and strength of the Colombo mar remain very firm. China's have had large sales, private business, to s extent, interfering with public sales. Altogether the tea market is sounder position than has been the case for some seasons past.—*Lea* Oct. 1.

PLANTING OPINION.

A WEEKLY JOURNAL

WRITTEN BY PLANTERS FOR PLANTERS.

VOL. III.] **MADRAS, SATURDAY, NOVEMBER 5, 1898.** [No. 44.

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N. B.—Remittances should be sent to E. C. Duft & Co., Proprietors, "Planting Opinion," 16/17, Armenian Street, Madras.

SEASON REPORTS.

TO OUR SEASON REPORTERS.

Please post your next reports to reach Madras on Friday, the 11th November, 1898.

Season Reports should be sent to the Printers, Messrs. Addison & Co., direct, and not to *Planting Opinion* Office.

Kadur.

Balur, 1*st Nov.*—*Weather.*—North-east showers in the evenings with a strong east wind every morning. Rain for October 13·40, against 7·60 last October. Total rainfall to date 103·30. *Prospects.*—Coffee looking very well all over the district. Leaf-disease of course prevalent where there is anything like a heavy crop. *Interesting Items.*—The popular Deputy Commissioner has been inoculated, setting a good example to the natives.

Pulneys.

Rain—has been almost incessant lately. *Crops.*—There is not much Coffee just about here (Neutral Saddle), but what there is is doing remarkably well. Crops are good, better than on the Lower Pulneys, probably on account of steadier rainfall, near higher range. Green bug has spread very much towards the West during the past year, but has not reached this saddle yet; in fact, I have seen no sign of it West of places 20 miles from this. Crops here are large, full and heavy, and will be ripe about January. Beans noticeably *longer* than on Lower Pulneys. Coffee here mostly under Natives, but well kept. Nothing but irregular cattle manuring—and doing very well too!

South Mysore.

Mudigere, 30*th Oct.*,—*Weather.*—We had a little fine weather, but again everything is gloomy, though there is little rain. This sort of thing is very bad for all crops. I am told that a large proportion of the paddy, especially that sown broadcast, will turn out light, and natives, therefore, foretell a large amount of floatage in the coffee. *Diseases.*—Leaf-disease is much complained of still, but some places are reported on the mind or "would be if we could only get decent weather," and a few others are said to have escaped serious affection. *Labour Supply.*—I do not think there is much to spare, but most people seem to have as much as they need, or is it perhaps only as much as they can afford on the small allowances agents are prepared to advance to those who require advances.

Health is fair. There is more fever, especially amongst imported coolies. All labour is much troubled about inoculation. A stranger to my coolies passed by, and I had great difficulty in getting a cooly to show him the way to a neighbour. My writer tells me that they all ran away and hid, fearing that he was an inoculator. It is a pity that a charge was not made for inoculation, to make a favor of it. Last time I wrote I gave you a Hindu rumour. Now I hear of one which is evidently of Mahomedan origin, though told me by a Hindu, viz., that the country has to be handed over to the "Roumi Raj" which has conquered the "Koompani," and in revenge the latter wants to reduce the number of people in the country. I never heard the "Koompani" spoken of as an existing force before. I suppose it is hardly necessary to explain that "Roum" is Turkey. *Grain.*—Prices remain about steady, but for some reason, salt has doubled in price, and the bazaarmen are putting this down to the sircar, saying that all salt now issued is poisoned and only the old stock safe. On the whole a few people badly want hanging, but the unfortunate thing is that the exact origin of all these rumours can never be traced.

THE DEVELOPMENT OF MARKETS.

INDIA.

THERE is a very considerable demand in this country for both Coffee and Tea. It is a demand that is probably capable of development, especially as regards Tea. It is a demand that cannot be gauged with the accuracy of statistics relating to the British, Continental and American markets, yet, nevertheless, the trade deserves to be studied by European planters more than it has ever yet been. As regards Coffee, there is perhaps not very much to be said, though probably the chief part of Indian demand is fed from Native estates. There must be a very large offtake of the lowest descriptions of coffee, there is a smaller but very steady trade in high-class descriptions. Prices of the latter are usually high: probably above the parity of London values; and the lowest sorts, almost refuse in many cases, at least yield something in India, while sale in England would perhaps not cover the cost of transport from estate to market and the usual selling charges. The stuff that is sold as "Coffee" in many of the bazaars of this country would probably be unsaleable at any price in Europe, unless purchased in bulk by manufacturing chemists! And we believe that the prices realised locally for medium and inferior qualities compare so favourably with those of similar descriptions in London, that the desirability of fostering the "country" trade is patent to all who have secured a footing in it. Whether the most effective and economical methods of distributing coffee among the towns and villages of India have been generally adopted, is far from certain; and it is probable that a little careful inquiry into this matter would amply repay the District Associations in coffee-planting centres.

Turning now to Tea, we come to a different state of affairs. There is a large offtake, no doubt; but it is not half as large as it should be. Imports of China Tea have continued despite the expansion of cultivation in this country. There are large quantities of dust and very low sorts of broken leaf sold in India; but the trade may almost be said to be in its infancy. Organization is sadly needed, and distribution in conveniently small lots at popular prices would most likely lead in a few years to the establishment of an enormous demand. A good deal been said from time to time about *packet teas.* For Indian trade, packets would need to be very small for most part; and, of course, the smaller they are greater, proportionately, is the cost of paper, wr ping up, &c. For our part, we doubt the advisability trying to push *packet* tea among the masses of the popu tion. The Anglo-Indian, the Eurasian and the higher cl Hindu and Mahomedan population appreciate tea a recognize the advantages of the packet system. But the lower classes *low* cost is almost the sole recommendat of a tea. They want something that they can afford, a the cost of carefully prepared packets is not within th reach. They want a very cheap description of tea, f warded in the most economical way to a conveni distributing centre, and there sold in infinitesima small lots at the infinitesimally small profits to wh many petty dealers in India are accustomed. We do advocate retail sales by the planter, or through age acting on his behalf. What appears to be wanted is a lo Lipton, a Native for choice, who will take this matter and push it on a fairly large scale, buying in the b market, contenting himself with small profits, and arranging that small parcels of tea shall be dangled bef the eyes of the public until the greater part of these pec become confirmed tea-drinkers. There was a time, r many years ago, when public-houses in England were v numerous and tea-selling shops comparatively scarce. H in India there are toddy-sellers in tens of thousands; t sellers might almost be counted in tens. Nor is t simply due to the fact that toddy is a village product all over the plains, whereas tea has to be procured from hills. The numerous depôts for the sale of Colombo arra the many "foreign liquor" dealers there are throughout t Presidency, go to show that the demand is not for pur local liquor, and is not due solely to the fact that supp can be obtained from locally-grown produce. We should glad to know if any planter has ever tried to cultivat trade in $3\frac{1}{2}$ to $4\frac{1}{2}$ anna teas, through native agents with native consumers. If so, a few facts as to his exp ences would be interesting, and if sufficiently fully set might help to show where the plan failed. That has not succeeded anywhere up to the present time, wo seem to be only too certain.

We take it that a great advance towards the developm of South Indian demand would be made if a large fact could be established to deal with the produce of a grou estates, with an expert blender available, and every applia for preparing and packing at the lowest possible cost. this touches upon another and an already mooted subj which could not well be discussed in detail in the cours our present remarks. The one point that we would earne urge on planters is this, to remember that after manufactu their tea at the lowest possible cost they can manage, t have a large market at their very doors, and should themselves out not merely to meet but to stimulate demands. Planters should not despise the "home trad as distinct from that with Home. Both Coffee and planters should do their utmost to encourage consump among the millions in India. In this work they will competitors no doubt, but they need not quarrel on t account. While seeking fresh fields to conquer, they sho not forget those near them; for it is a peculiarity of

Indian Coffee-planting industry, as well as of the Indian Tea industry, that distant markets have hitherto been cultivated much more assiduously than those "close home." It is not yet too late to remedy what has long been an obvious blunder.

NITROGENOUS MANURING.

To judge from one of the remarks made by a correspondent with reference to our paper on Electric Nitrates, it is possible that we may be thought by some of our readers to have advocated the use of nitrate of soda *alone*—that is, without admixture—as a fertiliser. This is not the case. We are not aware that nitrates have ever been so used. But phosphates in conjunction with nitrogen are known to have given a distinctly better yield of wheat both as regards quantity and quality; and the increase has more than repaid the cost of the manure. Some of our readers can no doubt tell us much the same as regards their own crops out here. Hence, it is not surprising that the use of basic slag has spread in England, notwithstanding the assertion that has been made that it is not the *scientific* farmer who uses it. One agriculturist explains that in basic slag we supply two out of the four important plant foods (one might almost say three, as the free lime in the slag liberates the potash held in the soil in an insoluble form), we therefore supply a sufficiency of minerals to enable the same amount of nitrogen to produce a more abundant crop. What is surprising is that so small an application as 5 or 6 cwt. slag per acre should produce such big results. These remarks apply to land that is not in high condition, or naturally a rich soil. The feeling in favour of basic slag arises, we believe, from the practical experience of many farmers that nitrogenous manuring for cereals proved a failure; the results of luxuriant growth earlier in the season being plenty of straw but little else, whereas on the land treated with phosphate, sturdy growth is found, and a good yield of grain. Of course, the failure of nitrogenous manuring in particular cases might be capable of some very simple explanation, for no system of manuring can be properly recommended for *all* soils under *all* conditions. It is well to note, however, that the use of basic slag *after lime* is not recommended. It is said that the effect of lime is to completely neutralise any benefit from slag for some years. It may be that nitrates have some similar "foe" to meet, and that the outcome of their use depends largely on the nature of the manures that have been used previously. The suggestion is merely thrown out on the chance that some of our readers may have something to say on the subject, or may be able to throw light on it.

NOTES.

Tea Seed in Cachar. Seed in Cachar is said to be late and small in quantity.

The Jokai (Assam) Tea Co., Ld. Up to 30th September this Company manufactured 3,005,680 lb. Tea this year, as against 2,899,040 lb. in the corresponding period of last year.

Tobacco. This crop is said to be doing excellently well in Behar this year, apparently under Native cultivation for the most part. Interesting experiments are being made in the Chittagong Division.

Tea in Lower Assam. A telegram to the *Madras Mail* states that a sudden fall in temperature has taken place in Lower Assam, and that everything points to an unusually early close of the tea season.

Coffee. The World's Visible Supply of Coffee on 30th September, 1898, was estimated at 401,710 tons, as against 351,310 tons on 30th September, 1897. The figures relating to Government crop in Java this year are only 97,000 bags, as against 445,000 in 1897 and 347,710 bags in 1896.

Ceylon Tea Exports. Tea Exports from Ceylon to the 25th ultimo, according to the Chamber of Commerce, are fully 5 million lb. in excess of those of the corresponding period of 1897; but to the United Kingdom they are nearly 700,000 lb. short. To countries outside the United Kingdom, total shipments are now over 19 million lb.

The British Tea Duties. The joint Committees of the Indian and Ceylon Associations to consider the steps to be taken in regard to the tea duties, were to hold their first meeting on Wednesday the 19th ultimo. In addition to Mr. Verner, the Indian representatives will be Mr. A. Bryan and Mr. C. C. McLeod.

Tea Sales in Colombo. At the public sale of tea at Colombo on 26th ultimo, about 6,297 pkgs. = 480,805 lb. were offered, of which about 4,023 pkgs. = 331,605 lb. were sold. The sale passed off with a very firm tone for all kinds at fully last week's prices. The best teas in the sale were: Glasgow, Ben Nevis, Devonford, and Columbia. Amongst low-country teas some of the best were: Talgaswella, Carbury, and Rayigam.

Producers and Exchange. Some planters consider that all producers in India are subject to the same excessive taxation that they consider the artificially inflated rupee imposes upon themselves. It is to be hoped that they will be cautious about instilling any such ideas into the thoughts of Native cultivators. Mr. Acworth, in his evidence before the Currency Committee, more than hinted at a Revolution as the outcome of an appreciation by the Native cultivator of his position according to Mr. Acworth's idea of it.

Ceylon Tea in Russia. The Ceylon men want a successor to Mr. Rogivue, to push tea in Ceylon. A Mr. Blumann has now been mentioned as possessing the right qualifications. The *Times of Ceylon* remarks:—He has lived many years in Russia, and has a long mercantile experience. He also married a Russian wife, and speaks Russian fluently. He does not, however, 'know tea' in the generally accepted meaning of that phrase. But neither did M. Rogivue when he left Ceylon and went into Russia single-handed.

Japan Tea. In a pamphlet published in Japan attention is driven to the extreme cleanliness of the Japanese, and to the fact that of the 93,000,000 lb. of tea imported into the United States in 1896, 61,000,000 lb. came from Japan. Some useful hints as to the making of tea are also given, and the general arrangement, and get up of the circular show that the Japan Central Tea Traders' Association from whom it emanates, are apt students in modern methods of pushing commercial commodities. Ceylon is not to have the advertising field to herself any longer !

Causes of Depression. A Cachar planter, writing to the *Englishman*, attributes the depression in the tea industry to the following causes :—Over-production by widespread extension and the opening out of large tea tracts; high exchange; unseasonable weather and late monsoons; short seasons resulting therefrom; drought and injury to plants from various causes; inferior quality and small outturns of tea; impossibility of reduction of working expenses and cost of manufactures. He asserts that 200 planters are likely to be in Calcutta, looking out for employment at the end of the year !

A dumping-ground for rubbish. It has been pointed out that the tea that goes to the Persian Gulf and the North-Western Districts of India is nothing but mere rubbish. There is, it is said, no prospect of ever being able to educate the poorer classes of Persia to look with any favour on good tea. Their specialty is red leaf and sweepings, and if they want it there is no apparent reason why Indian and Ceylon planters should not supply them with it. Indeed, it might be well to try to cultivate this trade so as to make Persia a convenient dumping-ground for the bestowal of all rubbish teas.

Coffee Estimates. A South Mysore planter writes us :—"With regard to Coffee Estimates, privacy could be secured by a few estates being grouped together and only totals sent in to Honorary Secretaries of Associations. We generally have some idea of our neighbours' estimates (with a few exceptions) so that no greater publicity would be necessary than now exists. I know there are a few extraordinary individuals who object to even their neighbours knowing their crops. The difficulty *here* would be the petty native planters, whose name is legion." It is a relief to know that there is *one* coffee planter, at any rate, who takes our view of this question. The pity is that there are not more.

Not Bison. There are no real bison in India, says a recent writer. Sportsmen out there are wont to indiscriminately style both the gaur (*Bosgaurus*) and gayal or mithun (*B. frontalis*) the bison; but in reality there are no veritable bison in India. In fact, throughout the whole world there are only two species of the genus bison extant—the well-known European bison, the auroch (*B. urus*) and the American bison, (*B. Americanus,*) strangely miscalled buffalo by our trans-Atlantic cousins, who have fully inherited the propensity of blundering in nomenclature inherent in us Britishers, if naught else. The shaggy coat and heavy mane characteristic of the true bison *per se* distinguish it from either the gaur or gayar.

Manuring Tea. After studying recent c spondence on the subject, the *Ce Observer* remarks :—"Judiciously carried out, there ca little doubt that manuring is a profitable operation. fact, the question has been asked as to what is the u stopping planting 'Extensions,' if instead, pla generally take to 'Manuring'? Say that 100,000 were manured so as to add, on an average, even 150lb acre to the crop, and we should get an additional outpu 15 million lb. of tea, or the equivalent of 43,000 additi acres at 350lb. per acre !—Perhaps, from this point of v manuring would cease to pay." We should say not, prov that the development of Markets is attended to simu neously with the development of crops.

The London Tea Market. Messrs. Gow, Wilson and Sta wired to Colombo on 27th ult reporting that the market gene was steady, and that good liquoring broken pekoes easier, while the market for poor liquoring teas was steady. The price of fair liquoring Ceylon Pekoe Souch was 6½*d.* and the average 8½ (same as last report). Re reported :—Tone of Ceylon Tea.—Common to medium k good demand at fully previous rates. Fair Pekoe Souch he quotes at 5½*d.* (same as last week) and the average 8 (¼*d.* down), 21,000 packages of tea were offered for sal which 19,000 sold. Of Indian Tea 53,000 packages w offered and 49,000 sold. The average was 8⅜*d.* advance of ⅛*d*).

Soil Analyses. Mr. John Hughes states that he received so many soils for exam tion and report during this year, that he thinks a tabul statement of the results (without the names of the esta would be of general interest to Tea planters because one thing to make the analysis and quite another thin draw correct conclusions from the results. In order make a practical report one should have a number of able results for comparison. Hence, soil analyses reports, require some practical experience in order to g useful recommendation in regard to the important con tuents, that require to be artificially supplied in mixture of manure. No doubt he is right, and any tabu ed statement that he may draw up will be of very g interest.

By-products and Auxiliary Crops. The depression in the Tea tr has caused a revival of an old cussion. Fruits, cardamoms,

COFFEE SHADE TREE.

Sun-dried Erythrina Lithosperma loppings, &c., contain ton :—

61·50	lbs.	Nitrogen.
57·38	„	Potash.
14·92	„	Lime.
13·68	„	Phosphoric Acid.

Seed cured under Messrs. Sutton and Sons' advice.

Orders should be booked early for the 1898-1899 crop of seed f the parent trees of above analysis at Rs.6 per pound contai about 2,000 seeds. *Germination guaranteed.*

Only thornless variety extant, and is not procurable anywhere from the

MANAGER, ARIENKOW ESTATE,
Shencottal

&c., are being suggested as worthy of the notice of the planter who finds he does not get enough out of Tea. Of course, there is a good deal to be said in favour of suggestions of this kind, but on the other hand there are many planters who would do well if they concentrated all their attention on one object. If a man undertakes to cultivate peaches, apples, cardamoms and what not, for sale, he must be prepared to devote special study to each product, and special care. This needs time, and in many cases might easily involve neglect of tea or coffee, one of which, after all, seems likely to be the mainstay of the estate. We certainly think that some few of the younger planters might cut out a new and very profitable line for themselves if they would quit Tea and Coffee and try fruits, vegetables, &c.; but that is "another story."

Planters and Exchange. The Darjiling Tea planters have adopted a resolution:—"That this meeting views with great alarm the present proposal before Government for fixing exchange at 1s. 4d., as calculated to very seriously injure, if not to ruin, the Indian Tea Industry, and resolves that the Tea Associations of Assam, Cachar and all other tea districts, the Indian Tea Association, and also the Tea Association in London, should be addressed on the subject, with the object of taking united action, and if thought advisable, of drawiug up a petition to the Secretary of State for India, to be signed as widely as possible by all interested in Indian tea, praying that some relief may be afforded either by imposing a higher duty on foreign grown teas, in proportion to the difference in exchange or of altogether removing the duty from British grown teas as a counter-balance to the bounty practically being offered to foreign teas by the abovementioned rate of exchange.

Brazilian and Indian Coffee. There is evidently a good deal still to be learnt. A South Sylhet writer learns from letters from England that a great many Brazilian estates must close or carry on at a dead loss, as the low prices ruling for coffee will not allow of Brazilian planters paying such enormously high rates for their labour in comparison to what is paid in India; and that, taking everything into consideration, the Indian coffee-planter ought to put his coffee on the market at one-fourth less cost than his brother planter in the Brazils. These be bold words, but evidently they go too far. They help to accentuate some of our recent remarks about looking into the question of *cost* as well as that of price realised. There cannot be a doubt that both the Coffee and the Tea industries of Southern India suffer under very great disadvantages from being worked on a very small scale and having to compete with the produce of concerns worked on a very large scale.

Cross-bred Cattle. An instructive experiment was commenced in the spring of 1895 by the Marquis of Londonderry, the object of which was to ascertain the most profitable class of cross-bred cattle. Heifers of the Aberdeen Angus, Galloway, and West Highland breeds were selected and mated with a first-class shorthorn bull, Champion, of Sittyton and Collynie blood. The first and second year's calves from these crosses hav e all been treated alike, and the older ones (2½ years) have recently been weighed. The Galloway crosses, all heifers, calved in April, 1896, averaged 87st. 4lb. each. The Aberdeen Angus crosses, all steers, also calved in April, 1896, averaged 99st. 12lb., or 2lb. short of 100st. The Highland crosses, which are one month younger than the others, averaged 95st. each for three bullocks, whilst a heifer scaled 82st. The noteworthy feature here is the relatively high weight of the Highland crosses. The fame of the "blue-grey," cross which results from mating a shorthorn with a black polled animal, is widespread, but here we see a shorthorn Highland cross registering a daily gain in weight scarcely inferior to that of the shorthorn Aberdeen-cross, but the lesser age is, of course, slightly in favor of the former when the calculation is made.

Black Tea from Green Tea Leaf. The *Grocer* says:—"We recently saw a notice of an extraordinary process by means of which black tea can be converted into green tea leaf. It reminded us of an article which we read in one of the foreign wine journals, showing how white wine can be made from red grapes. At this rate it ought soon to be possible to prove that black is white and *vice versâ*. The process by means of which green tea is converted into black consists in first withering, and at the same time more or less oxidising (fermenting) the green leaf by submitting the unrolled leaf to the action of a current of warm, moist air at a temperature of 135 deg. to 145 deg. F. During this operation the tea is continually lifted up and allowed to fall, and fresh air is continually admitted to replace the air from which the oxygen has been absorbed. The leaf is then rolled and dried, or the juices may be first 'thickened' (with or without intervening second rolling), and the leaf finally dried. It is optional, but not preferable, also to submit the leaf to more or less of the ordinary fermentation process before the final drying." We rather fancy our Ceylon friends would be more grateful for information as to how to produce Green Tea from Black Tea leaf!

The Eucalyptus as a Fever Destroyer. The efficacy of the eucalyptus as a fever destroyer is frequently discussed, not so much because any one doubts it as because men question whether the leaf or the scent or the vat is the most useful part of the tree. Writing to the *Planter*, a correspondent remarks that some writers are only half correct in attributing the efficacious properties of the plant to the aromatic scent of its leaves. As a matter of fact, however, the tree is possessed of very powerful roots; these pierce through the bed of clay that retains the moisture, and drain marshy lands. General Rhodes Morgan, than whom, perhaps, the Indian Forest Department has known no more scientific enquirer into valuable details, records that in many parts of Italy, where *Pinus meritima* has been planted, the ground has been completely drained, and the malaria banished. Again, at Arcachon, in France, there was a very considerable tract of land, full of marshes, with stunted beech, oak and elm growing, the place being the resort of snipe and woodcock. The trees were cut down, and the whole area planted out with the turpentine-yielding fir. The result was that the ground was completely drained of all malarial moisture and the place became a sanitarium for invalids. In Algiers,

the planting of the eucalyptus has, in numberless instances, been productive of the absolute banishment of malaria.

LETTERS TO THE EDITOR.

FRUIT PESTS.

SIR,—I shall be extremely obliged if you, or any of your readers, can put me in a position to reply to the following inquiry from South Africa:—

"Are your" (*i.e.*, Indian) "fruits—all or any of them—attacked by maggots, and, if so, is there any chance of the mother-fly being *Ceratatis capitata* (Wied.)—*Citriperda* (MacL.)?"

HARRY ORMEROD,
Secretary,
U.P.A.S.I.

MADRAS,
31*st October*, 1898.

PEPPER.

SIR,—I notice in your issue of August 27th a 'par' on Black Pepper based on the remarks of the 'Planter' on the subject. I quite agree with you that the statement regarding the return per acre (Rs.250) reads almost as a dream—if it is not a dream. The pepper planter who, without any material cultivation can make an acre yield Rs.250 is indeed one of those happy individuals whom fortune truly smiles upon. Like the Editor of *Planting Opinion*, I only wish I could take up 100 acres of pepper in a favourable locality and exist.

So much for the dreamy side of the question, now let us turn to the reality. I know large extents of jungle in the Western Ghauts, where the pepper vine is indigenous, and where it has been cultivated for at least 20 or 30 years. Although before any blight attacked the vine the return was fairly good, still I am not aware that the return per acre was within measurable distance of the wild statements in the 'Planter.' Latterly very serious blights have had to be coped with and I am afraid with very indifferent results in some cases. Again the difficulty of rearing vines from cuttings or seed is very great, especially with seed as generally a very large proportion, give male or non-bearing vines. The 'Planter' seems to take it for granted that every vine will bear. Happy 'Planter'! I have seen a very large extent under pepper and, taking the good with the bad, comparing the number of non-bearing vines with bearing ones, and taking into consideration the amount destroyed by the elements, I cannot by the wildest stretch of imagination conceive how the 'Planter' makes such astounding calculations.

Perhaps the 'Planter' could tell us how such results are arrived at, and give us a few hints replanting with cuttings and rearing from seed; also a few hints as to how to cope with the various blights liable to attack the pepper vine.

MENSU.

GEO. HODSON,
FLORIST AND SEEDSMAN,
By Appointment to H.E. The Governor of Madras,
RESIDENCY ROAD, BANGALORE.
Telegrams: **HODSON,**
Bangalore.

Fresh Flower and Vegetables Seed. Acclimatized Seed.
Standard and Dwarf Roses. Fresh Grevillea Robusta, Albizzia Molucanna, and other Tree Seeds suitable as windbelts or shade.
Terms—CASH or V.P.P.
Seeds not in stock procured at shortest notice.
[w. 3-9-98—t.f.o.]

GENERAL ARTICLES.

THE U.P.A.S.I. SECTION.

[UNDER THE CONTROL OF THE SECRETARY, U.P.A.S.I.

THE subject of the classification of coffee is still u consideration, but it is doubtful if much can be towards carrying out the suggestions lately made Mr. Graham Anderson. After consulting a leading fir brokers in London, Mr. Frank Mangles points out coffee prices depend (1) upon the particular estate on w the berry is grown, and (2) on the firm of cleaners to w the coffee is sent. Apparently, therefore, any ger classification of average prices would be impracticable, any attempt in this direction would be as misleading disappointing as the present "system". The diffe firms of cleaners do not appear to have the same stan of denominations, so that one turns out more "A" less "B" while another delivers less "A" and more " It would not be easy to decide which standard shoul adopted by Reuter's Agency when telegraphing quotat

* * * * *

Still, there is no doubt that an improvement of the pre arrangement (it really can hardly he called a *systen* desirable; and perhaps some experienced planter can sug away.

* * * * *

Correspondence concerning lady-birds has been co in freely, and it is now intended to publish the gist at as early a date as possible. The manner in w various scientists have responded to the inquiries mad the Association is most encouraging, and the efforts n by the Association in respect to the importation of l birds have evidently aroused considerable interest.

* * * * *

Mr. Graham Anderson, C.I.E., has sent in a collec of Mysore lady-birds, and it would be well if his exa were followed in other districts. More than one scie has thrown out a hint that we should search at home as as abroad for the natural enemies of the scale pests attack crops. The identification of species, &c. c probably be effected here, though at the moment no con tent man has leisure for the job. If not, the specin could at least be forwarded to England, and a re obtained from the best authorities there.

* * * * *

The Government of India has sanctioned the employm by the Mysore Durbar of Dr. Adolf Lehmann, B.S.A., P as Agricultural Chemist for a period of five years. It i be hoped that the services of this gentleman can still secured for the Mysore Province.

GREY BLIGHT ON TEA.

SOME little time ago, says the *Times of Ceylon*, we were sent sam of tea leaves diseased in some way unknown to the sender, but leaves when they reached this office were so dry that we reque our correspondent to forward specimens direct to Mr. Willis Director of the Royal Botanic Gardens at Peradeniya. We are s however, to hear that in this case it was not done, but in the cour a letter from Mr. Willis, he tells us that he has little doubt that disease is the same as that he has known for some months pa common in the Kelani Valley and round about Nawalapitiya. Watt reports that there is little doubt that it is the "grey blig

of Assam, described in the *Kew Bulletin* a few months ago (see *Tropical Agriculturiet* for September). Mr. Willis continues:—

It is a very troublesome pest, but can be kept in check by regular plucking, every two or three days, of all leaves found to be affected. If this is done frequently enough, the fungus is prevented from forming its spores upon the diseased leaves, and, in time, the disease may be almost completely eradicated. Of course the diseased leaves must be burnt as soon as picked. The disease is common on Camellias in Europe, and hence appears to take readily to the tea bush, which is the nearest ally of the Camellia. I see no reason to apprehend any very serious damage to the tea industry from this pest, which has been known in some districts for the last five or six years, but planters must be prepared to spend a little time and money at the first appearance of the pest, or they may find it gets much more serious. In dealing with diseases of this kind, there is very much truth in the old adage that "a stitch in time saves nine."

These are all valuable suggestions, for which we are much obliged to the Director as all our readers must be. As he reminds us, the disease is now so frequently met with in many places, that nothing is to be gained by concealment. On the contrary, it is well to put planters on their guard against it, so that it may be taken in hand on its first appearance, in which case it is not likely to be serious for long. We also learn from Mr. Willis that several men who have been following his directions have complained that the disease continues to get worse. This is, he thinks—as with the cocoa disease—merely the result of the fact that planters are getting to recognise the disease more readily; and probably, when they first noticed it, the estate was more or less thoroughly infected, so that, for some time, it will naturally continue to break out in new places.

LATEST TELEGRAPHIC QUOTATIONS.

			LONDON, *2nd Nov.*	
Bar Silver	...	...	...	$28\frac{3}{16}$
Bank of England Rate	...	...	...	4 %
Coffee—				
Nilgiri, average (B) size		...	...	65
Middling Ceylon	...	...	...	103
Mysore average (B) size		...	...	75
Cinchona Bark—firm—				
Price per unit of Quinine		...	...	$\frac{2}{3}\frac{9}{2}d.$
Stock	...	...	21,000 packages.	
			NEW YORK, *2nd Nov.*	
Rio Coffee	...	...	...	$5\frac{1}{8}$
Futures—February	...	...	...	5.18
Silver—commercial bars	...	...	...	$61\frac{1}{2}$

TEA IN OUR SCHOOLS.

IN Collins' First Graphic Reader Series there is the following lesson on

MAKING TEA.

"Mother, let me make the tea this time."
"Have you ever made it, Milly?"
"No, mother, but I wish to try now."
"Well, take some tea from the can, and put it into the tea pot."
"How much shall I take?"
"Fill the spoon once for each one of us."
"One, two, three, four, five, and a big one for Frank makes six."
"That will do, now pour in some hot water, and set the tea pot under the cosy, so that the tea can infuse."
"How long must the tea Infuse?"
"Only a little while. The hot water will soon make nice tea for us. Can you tell me what tea is, Milly?"
"Yes, mother, I think I can. *Tea is made of the leaves of a plant that grows near the sea. Men pick the leaves from the plant, then roll them up, and dry them. When the leaves are quite dry, they are put into boxes and sent to us in large ships.* The tea plant grows in lands that are very far off, and the ships have to sail a long, long time before they get to us."

It almost seems as if an Educational Fund ought to be established for the purpose of providing proper "readers" for the young. We are informed that the illustration attached to the above delicious piece of unconscious humour shows a garden laid out in small beds like those for vegetables, with some carrot-like plants in three or four rows.

THE DISAPPEARING TEA TRADE OF AMOY.

FOR many years Amoy was one of the chief centres of the tea trade of China, the leaf exported from there having a character of its own. But this trade is now disappearing. According to the last report of the British Consul there, Amoy exported in 1877 over 12 million pounds of tea; in 1896 the export was less than $4\frac{1}{2}$ million pounds, and last year it fell to 1,616,933 pounds, and he believes that soon tea will cease to be a product of the district. There is little doubt that the extinction of the industry is due to the ruinous system of taxation. The heavily taxed Amoy black tea cannot compete with the untaxed Indian and Ceylon teas, while the dilatory and vexatious modes of collecting the *likin* lead to much of the leaf becoming damaged during transit. In the Amoy district tea gardens are to be seen which have run to waste, the comfortable homesteads of the once prosperous, tea-growers being in ruins. "Unless the system of taxation is reformed the prospects of this district are somewhat gloomy. There is as yet no indication of such reform, The only idea the authorities seem to have is to endeavour to obtain from the decaying industries as large a revenue as they obtained from them when in a more flourishing condition, and the only means to this end they seem able to devise is to increase the stringency with which the *likin* is collected, and thus accelerate the total extinction of the trade." Similarly the sugar trade of the district would have greatly advanced but for *likin*. The climate and soil are particularly fitted for the cultivation of the sugar-cane, while the people are industrious and skilled in the industry. The Japanese market, with a great and growing demand, is close at hand; yet the trade shows on expansion. Meanwhile Formosan sugar production is increasing and is untaxed; and, says the Consul, the freedom from the curse of *likin* more than compensates for any advantages the soil and climate of Amoy may may possess over those of Formosa. Again, there would be a hopeful trade in tobacco if it were not for *likin*. The tobacco dealers abroad discoversd that the Amoy leaf was very suitable for cigarettes, and a trade was beginning to spring up when the nascent industry was nipped in the bud by *likin*. The tobacco exported is grown in the immediate neighbourhood of Amoy, and is therefore not subject to *likin*; but the officials, in defiance of the treaties, having destroyed the trade in the interior, are now seeking to destroy that in Amoy itself. Even the goods exported for the use of Chinese abroad, such as paper, ironware, and coarse china, are being ruined by the local taxation. In a special report on the tea trade, which is appended by the Consul, it is stated that the best expert known in Ceylon after visiting the Amoy tea districts stated that under no circumstances could they be revived so as to enable them to stand the taxation at present levied in China.

RHEA.

THE time for planters in India and the East, generally, to seriously take in hand the Production of Rhea Fibre, has now fully arrived, and we hope, in the very near future, to receive more numerous

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[22-10-98—t.f.o.]

inquiries from our readers as to the best means of disposing of prepared filasse. For some time several factories in England and America have been engaged exclusively in manufacturing all kinds of textile fabrics from the fibre, and there are unmistakable signs that a fine future awaits the new industry. In addition to a profit obtainable from the preparation of the fibre, however, there are several other good points about Ramie cultivation. Besides being perennial, the plant requires absolutely no cultivation beyond thinning out (and the thinned out plants may be at once replanted in new ground) after attaining a height of three feet; the original root survives for thirty to forty years; the leaves are greedily eaten by cattle and are highly nutritious; and the best means of propagation are from root cuttings. Planters need lay out but little capital on this product, as the stalks are marketable without degumming, or additional profits may be realised by doing the degumming, and fibre-extraction on the estate. Thus, on the lowest computation, a return of £18 per acre is certain, with the expenditure of the minimum of labour and capital.

If Actual Results are required, here they are! Upon an estate in Mexico the outturn of cleaned fibre, in 1896, was 1,936 tons, and the price obtainable, in New York, was 250 dollars (£25) per ton. The total cost of cultivation and laying down in New York, including £5,550 (nearly £3 per ton) for carriage and insurance, amounted to $203,007 (Mexican), and the working capital was increased to $233,007 by $30,000 expended on machinery. After deducting $27,830 for commissions, the net profit reached $326,692, or 145 per cent. on the working capital. Such results leave ample margin for repayment of interest upon cost of land, and actually make it possible to repay the purchase money within a very short time, and still have left an estate bringing in a handsome profit, especially in countries where land is cheap.—*Produce World.*

A NEW "MARKET" FOR COFFEE.

BAGS OF COFFEE FOR FORTIFICATIONS.

THE *Times of India* was primarily responsible for giving currency to the following story (written at the close of August) by an Anglo-Indian resident of Guatemala, Central America:—

"We have just come out of the throes of another rebellion, and yesterday the 'General' that headed it fell into the hands of the Government soldiers. The President immediately announced the capture officially, adding that shortly after being taken the rebel chief died a natural death, probably of unmitigated disgust. But you would not suppose that the person who really put down this rebellion in Guatemala was none other than Mr. John Bull. One of his cruisers was knocking about in these waters, just what they were doing only John Bull himself knows. Then the rebellion broke out on the frontier, and as the mutineers were short of change, they swooped down with 300 men on the defenceless port of Ocos, and captured the place after hard drinking. At this port there lay some 8,000 sacks of coffee belonging to various British, American and German houses. Out of a part of these heavy bags of coffee they constructed a kind of Havana or Cavite on a small scale, and behind them prepared to resist the attacks of the Government forces. The rest of the coffee they had already arranged to sell for a fair price on the Mexican border, and thus fill the empty Treasury. These people are both warriors and financiers of the latest type. While this detachment was engaged in the delicious task of awaiting the Government advance and the sale of coffee, other army corps under experienced Field Marshals were undertaking extensive operations in the interior. At this juncture the said cruiser got wind of the fact that some British interests were endangered in Guatemala, and at once made direct for the port of Ocos. Here they found that the rebels besides appropriating the coffee had ensconced themselves on the pier, a large wooden structure, to prevent any Government troops from landing there. They had further laid trains of powder along the pier, and under all the rolling stock of the railway that has its terminus there, so that in case of a forced retreat they could at once blow up everything and cut off pursuit. The captain landed with 100 men and demanded an accounting. The rebel General asked him to sit down to a cup of coffee and rum and treat about the matter. Capt. Fagan declined with th and ordered them to leave the town immediat, elyfirst placing a coffee where it had been, and dismantling their coffee fortifica in case of non-compliance the entire revolutionary force to be b alive under the 8,000 sacks. They retired, and when the rebels other parts of the Republic heard that a British gun-boat was ag them, they held a council of war and decided that it was prude disband. The leader was caught shortly after, and thus the fo revolution—since I have been in Guatemala—passed into his The *Leander* then returned to San Jose, and the officers all came Guatemala City for a week, and were dined and wined here magnificent manner, both by the Government and each of the fo clubs, the Germans alone spending some 4,000 dollars in enterta them one evening. It seems the German Insurance Companies were saved heavy damages by the averted blowing up of the Ocos thought themselves bound to make a splendid show, and the of were certainly very much pleased at their generous hospitality. left town amid a rousing reception at the railway station, at lea an Irish friend of mine said. Business has been so bad here safety for life and property so endangered during the last six or e months, that Europeans have been leaving the country in g numbers."

COFFEE IN SOUTH SYLHET.

THE local correspondent of the *Planter* wrote recentl

This seems to have grown more during the last two months it did during the whole preceding months of the season, and alludes to both Arabian and Liberian. As I opened out 50 this season I had no time for much cultivation in the older gr merely light forking round plants and keeping jungle clear, this, although sometimes necessary as a makeshift, is a very substitute for an all-round *kodali*, and this applies to tea as we coffee. In tea the *kodali* can be sent down to the hilt pretty into the plants and do no appreciable harm to the roots, but if is done in the case of coffee you run a chance of greatly weake if not killing, your plants outright, owing to the coffee being of a surface rooter than our mighty Sylhet staple. I have very little disease, and what I have seen has been on the Lib variety in the shape of black spots turning into holes in the le but it does not seem to hurt old plants much. On my garden I have seen no disease of either variety, but on a n bouring garden a patch of three years' old Liberian caught sort of a disease which simply killed the plants to the surface root sending a bunch of shoots away again which had no sig disease. I was puzzled over the matter because plants gro side by side, one would go as I have described, and the other w keep all right. The patch, I allude to was allowed to get rathe heavily shaded and this cleared off all at once, and the p suddenly exposed to the direct rays of the sun. I have wandered if that had anything to do with it. Perhaps Coorg say something about this. Plants of this season's planting growing away beautifully, and are commencing to show their pair of primaries. The weather we have been having has appare suited them down to the ground. and I would say that the coup inches or so of rain we have had this week will still further their benefit. The older coffee plants of the district are ripenin their crop, and, considering the terribly trying time the plants last spring, the crop, by all accounts, is going to be equal to years. When I speak about "crop" it must not convey the idea to anyone that the same word would do when used by Coorg correspondent. There is very little coffee grown in S Sylhet, and what there is mostly either experimental or else g for private consumption, but still it is always worthy of b designated *crop*, however insignificant from a commercial poi view. We cannot but say that we have variety enough, as we no less than five—Arabian, Liberian, Blue Mountain, Marago and the indigenous Bengaliensis. I note in Coorg's letter Mr. Cameron's services have been lent to the U.P.A.S.I. b Mysore Government. The planters of Mysore and Coorg are congratulated upon this decided piece of luck if we may call i such a name when they only secured the boon by their own

MILLIE & REDMOND, late P. THOMPSON & CO., *Ootacamund, Engineers and Contractors.*

sight in making application and taking time by the forelock, instead of lulling themselves in fancied security and putting off taking action until the insiduously increasing mischief has become almost irreparable, as has been the usual custom of doing hitherto not only in coffee but in tea also.

In a later letter the same writer reports:—

I mentioned in my last that I thought this had grown more during the last two months than it had done during the previous months of this season. It still sontinues to grow rapidly with fine large, healthy looking, dark green leaves. If I may judge by appearances, the rain we have had during this month has done the coffee here a power of good, more especially the young plants.

FACING THE POSITION.

That tea will regain, if not its pristine importance, or at least recover the position it held four years back, we are convinced, says the *I.P.G.*; meantime we earnestly urge upon proprietors the obvious necessity of providing substitutes to lessen the losses of the results of unfortunate waning seasons. Many planters have been in the habit of looking upon tea as a gentlemanly occupation, and considering the suggestions as to dairy and poultry farming, fruit raising and the growing of day-to-day requirements for the multitude quite *infra dig*, and it is time these notions should be effectually exploded, for unless the prompt prosecution of other industries is set about forthwith, thousands of acres must lapse into jungle and scores of men—many of them with families—be thrown out of employment, while there are the imported coolies to be dealt with. In fact, our apathetic shareholders must bestir themselves if they do not wish to sacrifice all they have sunk in Eastern India, by taking the conduct of affairs out of the hands of those who, by misleading them for past decades, have landed them in the present sorry plight. There are at least a score of industries by which the financial condition of tea companies can be redeemed, but the local Managers, to whom these matters are perfectly well known, must be brought into direct contact with those who find the wherewithal. Social associations between Directors and shareholders have, in the past, been the cause of too much blind trust, and now that the result of reposing over confidence in the former by the latter but too apparent, it is to be hoped in the interests of the investor, is such may be not further indulged in.

It would be a waste of time and money to seek to bolster up gardens we know of whose area amounts to thousands of acres, even by the exercise of scientific gardening, or even the opening out of fresh land, as no returns could be expected for at least four years, while the present is a case of urgency. Use might be made of *bheels* which, if not included in the grant, could be rented from Government or zemindars, and as suitable ploughs, drills and other appliances are in stock in Calcutta, such crops as wheat and mustard could be laid down, the earlier after the rains have closed the better. Whether the proceeds would tide over next season we are not prepared to say, but as the cultivation of these cereals can be prosecuted and fitted for market by mechanical means in almost every detail, they ought to give some decent intake, that, aided by prudent drawing on the reserve funds, should carry a concern through next season. Once we get over 1899, if proprietors will take the present lesson to heart and prohibit extensions, tea will undoubtedly come round, but if once out of the wood, we return to the follies of 1893-94-95, there will most assuredly be a repetition of the present impending disaster.

Though tea manufacture may form the main operations of the planter, it must be obvious now to the meanest mental capacity that to rely wholely and solely upon it in the future is downright foolishness. Our outturn should be adjusted by the markets of consumption, which can easily be done by consulting the price lists of all countries in which Indian tea has obtained a footing, relying only on the Mincing Lane Circulars to guide us in so far as the requirements of the United Kingdom are concerned. The industry is on the verge of a revolution, and that revolution must necessarily be of the most radical, sweeping character. That vested interests must suffer is inevitable, and to use a somewhat vulgar expression, there is likely to be a "general row all round; but the crisis is one entirely for shareholders to deal with, and it will be necessary for them to assert themselves without fear or favour, unless they prefer taking their losses quietly, resting under the stigma of "people of no account."

TEA COMPANIES.

Ceylon Tea Plantations Company (*Limited*).—The Directors have declared the usual interim dividend of 7 per cent. (being 14s. per share) on the ordinary share capital, payable on October 27th.

Duckwari (*Ceylon*) *Tea Plantation Company* (*Limited*).—The Directors recommend a dividend of 5 per cent. on the ordinary shares after writing off £331 for depreciation, &c., and carrying forward £601.

Indian and Ceylon Tea Trust Company (*Limited*).—The following is the report of the Directors presented to the shareholders at an ordinary general meeting held at the offices of the Company, at 34, Nicholas Lane, London, E.C., on Friday, October 28th:—

The Directors, in presenting the first annual report and accounts, made up to 30th June 1898, regret that the period elapsed since the formation of this Company has been an unsatisfactory one for the tea industry generally. The chief causes of depression were the rise in the exchange and the fall in the price of tea, but the Directers now look forward to a general improvement in the conditions.

The experience gained shows that there is room for the establishment of such an organisation as this Company. The income receipts shown by the accounts may be considered satisfactory, and in normal and more favourable circumstances the result would undoubtedly be better.

The accounts accompanying this report show that the total income earned to 30th June, 1898, amounted to £3,061-4s 10d, and after paying interest and expenses of carrying on the Trust, a net balance remains of £2,189-1s 8d.

The investments of the Company are shown in the balance sheet at cost price, but the present state of the tea industry has necessarily caused some depreciation in their value.

Under these circumstances, the Directors regret that they are unable to recommend the payment of a dividend, and propose that the profit be carried forward. They have also resolved to forego the fees payable to them under the articles of Association.

In accordance with the articles of Association, Mr. Keith F. Arbuthnot retires from the office of Director, but being eligible, offers himself for re-election.

Messrs. Singleton, Fabian & Co., the auditors, do not seek re-election as such, as they have accepted responsibility for the secretarial work of the Company.

New Dimbula Company (*Limited*).—The Directors, in their Thirteenth Annual Statement of Accounts, are again able to congratulate the shareholders on the satisfactory result of the past year's working.

The yield of tea exceeded the estimate; the yield per acre was larger, though it was not an ideal season for flushing, and the prices obtained show a slight improvement on those of the previous year, while the cost of production has been reduced; on the other hand the rate of exchange ruled higher.

The estate is reported in good order throughout, including factory and machinery.

The area of tea in full bearing is 2,193 acres, according to the existing plan of the estate; a new detailed survey is being prepared, showing the various acreages more accurately. The extensions during the past two seasons amount to 152 acres.

The accounts now presented show a surplus of £22,751 11s. 5d. after writing off the amount of tea extension account, viz., £738 15s. 9d., and the amount of the factory and machinery account, viz., £238 2s. 2d. The Directors propose a dividend of 8 per cent. per annum on the "A" and "B" shares, and 6 per cent. per annum on the "C" shares, for the year ended June 30th last, a moiety of which was paid in March; and they further propose an additional dividend of 8 per cent. on all shares, and the placing of £6,000 to the Reserve Fund.

Maturata Tea Company.—A dividend at the rate of eight per cent. per annum for this new Company is good.

RHEA FIBRE IN INDIA.

Mr. Arthur A. Moss, Managing Director of the Rochdale Rhea Fibre Spinning Co., Ld., writes as follows to *Capital*:—

Sir,—My attention has been called to a notice in your issue of 28th July, 1898, respecting rhea fibre, and as this is likely to be prejudicial to the encouragement of the growth of the plant; I shall be glad if you will make use of the following information.

Many fortunes have been lost in trying to use rhea fibre as a substitute for silk, but this idea of its use is now as dead as Queen Anne. It is being used to adulterate silk for some purposes, such as the silk stripes in heavy cotton or woollen goods, or the silk effects in tapestry cloths.

The future field for rhea is where its great strength and lustre separately or combined can be made use of, and this field will only be limited by the cost of production, as there are now known processes which will degum the ribbons and leave a strong lustrous fibre for spinning. The offer you quote of £12 per ton, c. f. i., London, was for black ribbon, and I have every reason to believe it is a remunerative price to the planter.

I have used very large quantities of Indian black ribbon contracted for and shipped at under this price, and from many lots have obtained excellent results, but the majority of the shipments have been unsatisfactory. Firstly, because the plant has not been cut at the proper time, much of the material being immature or over grown, and in great proportion been too short in length; and, secondly, on account of the packing, the material having been packed damp and fermented during transit. The correction of these mistakes and the shipping of good material in good condition cannot add to the cost; and I, therefore, take it that what was considered a remunerative price for the bad material shipped will be the same for good material when the cutting and packing are understood. In support of this I have, during the last week, bought and contracted forward for a large quantity of China grown black ribbon at £15 per ton. Of this material I have worked about 50 tons, and as the Chinese understand the growth and packing, I have not had the same difficulty as with the Indian, and in almost every case have obtained good results. In China the collecting and getting to the coast for shipment is most difficult and expensive, and if they are already prepared to sell at £15 per ton, I don't doubt that in the near future £12 per ton will be a full price to pay to countries which are more favourable to the growth of the plant.

In the notice under report you say " good rhea filasse is worth, we think, nearer £30 per ton than £12 per ton."

It is necessary to explain that the £12 per ton was offered for black ribbons, and that the term filasse means the ultimate fibre as abstracted from these ribbons and freed from all epidermis and gum or resinous matter, and in a condition ready to be combed so as to parallel the fibres for spinning. There is a loss of over 40 per cent. on the best of black ribbons, and in addition to this, the cost of the degumming process. I make the cost of filasse from good ribbons costing £12 per ton at over £45 per ton.

To prepare good ribbons the stem should only be cut at the fully ripe age before the plant flowers or forms branches, and when the stem at the root gets brown, the leaves should be stripped from the stem by passing through the hand from top to bottom, breaking the leaf stalk away without dragging with it any of the peel or bark. The peel or cuticle should be stripped at once from the cut stem, and this can easily be done by simply inserting the thumb at the root end between the peel and the pith, and passing quickly up to the top end, thus getting off broad ribbons without any crushing. All China-grown ribbons are stripped in this manner, and I have none damaged.

There are many decorticating machines recommended, but the danger is crushing and breaking the fibre, and dividing the peel into too narrow strips. A good ribbon should be as clean, as long and as broad as possible.

To put the steam in a hot bath with a slight admixture of crude soda would facilitate the stripping and scraping, and then with some blunt instrument like a split bamboo scraping off the cuticle or actual outside bark. The ribbons should be then most carefully and thoroughly dried by being spread out or hung on rails; if placed in a green or wet state in heaps, they will ferment and the fibre be useless. It would be an advantage both for packing and in the after process to have the ribbons assorted into lengths; they should not be tied into bundles or packed so tight that the ribbons will in any manner be crushed, bruised or broken. If made for convenience into bundles, they should be tied loosely together with a ribbon, and it is essential that they are so packed that the ribbons will not in any manner be crushed, bruised or broken.

To make the above as clear as possible, I send you per bearer a sample of some of the best ribbons as shipped from China. These are not what we know as China grass or yellow ribbon which is a much more cleaned and finished article, also a sample of filasse as degummed from these ribbons, and a sample of the filasse con and ready for spinning.

I should be glad to be put into communication with any gro or exporters of rhea, and to give any further information in power.

PARAGUAY TEA.

(ILEX PARAGUAYENSIS.)

"H. D." writes in *Indian Gardening*: One often hears of Para Tea and the wonderful virtues ascribed to the decoction made the leaves and branches of the tree which yields it, yet how litt most people know concerning the history of this particular either as regards its habit of growth, or the manner in which th is manufactured. To the people inhabiting South America Para Tea is one of their most important economic products, and is ju necessary to them and serves the same purpose as our Indian China teas do to the rest of the world.

There are a number of plants which have some reputation as producing plants, the most notable being Ilex Cassine, the infu from the leaves of this tree going under the name of " Black Dr of the Carolina Indians. Ilex gongonha of Brazil, Ilex fertilis, Humboldtiana and others, and the confusion which used to exi to the real source of Paraguay Tea was entirely due to the produ so many different trees being sold under one name.

Ilex Paraguayensis, the true source of Paraguay Tea, is a nati Paraguay and Brazil. The Order of plants to which the tea bel is familiar to all of us, and is the same which supplies us with the H (*Ilex aquifolium*), the berries and branches of which are so assoc with Christmas decorations in England and elsewhere. Ilex P guayensis forms a good-sized tree in its native country, and del in a tropical temperature with a fairly moist atmosphere.

To show what an important plant it is to the people of S America, and the enormous quantity of the tea consumed by the need only be stated that the annual consumption is estimat 8,000,000 pounds, and besides this, 5,000,000 pounds is said t exported from Paraguay alone.

The preparation of the infusion of Gerba de mate, or Paraguay is neither difficult nor elaborate. According to instructions giv the Kew Museum Guide Books, "the leaves are scorched and d while still attached to branches brought in by collectors; they then beaten, separated, coarsely ground by rude mills and pack skins and leathern bags. The leaves are infused in small tea and the tea imbibed from the spout or by 'Bombilla' or tube wire network or perforation at the bottom." According to ano authority we learn that to prepare an infusion of matè or tea, " a spoonful is put into a gourd or cup, with a little sugar, the drin tube is then inserted and boiling water poured on the matè, w sufficiently cool the infusion is sucked up through the tube." mode of imbibing the tea reminds me of the natives of Sikkim drink their " Murwa " in the same manner.

When prepared, matè is said to have an agreeable slightly arom odour, rather bitter to the taste and very refreshing to the hu frame after enduring great fatigue. It is almost impossible for t accustomed to it to leave it off.

The medicinal virtues of Paraguay Tea are such that it acts in s degree as an aperient and diuretic, and if taken in over-dos causes diseases similar to those produced by strong liquor.

According to one authority, Dr. T. Crawdown Charles, a ta acid is present in a large amount, and as stated in the *Kew Bul* for May and June, 1892, "although matè is closely allied to coffe yields up its active principle in a different way, and it is slower coffee in yielding up its nutritious principles to boiling water."

We are told that there are three sorts of matè known in S America, namely, Caa-Cuys, the half expanded leaf buds; Caa- the leaf torn from its midrib and veins without roasting; and Guaza or Yeroa de Palos of the Spaniards, the whole leaf with petioles and small branches roasted. The active principle, th contained in tea and coffee is also present in the Paraguay Tea, not the volatile and peculiar scented oils which are so notice in the first-named products.

We have seen from the above that Ilex Paraguayensis, the p yielding matè or Paraguay Tea, is a plant held in very high mation by the inhabitants of South America, as it most certa deserves to be if all that we have read concerning it is correct, scarcely any doubt appears to exist that all the virtues ascribe

the plant are present. The question whether Ilex Paraguayensis will grow well in India is proved by the very fine specimens that exist in the Royal Botanic Gardens, Calcutta. There the plants may be seen in vigorous growth and in the best of health, and forming a group, on the east side of the Clarke avenue, close to the western entrance to the big palm house. The trees are shapely in habit and grow to a height of from 15 to 20 feet. A moist and rather shady position favours the growth of the tree, if those under notice can be taken as a guide to successful cultivation. Such a climate as that of Calcutta ought to suit the growth of Ilex Paraguayensis admirably, and, I believe, this can be proved not only in the Royal Botanic Garden, but in the gardens of the Agri-Horticultural Society of India.

In the North-West Provinces plants will grow with some amount of success, but not with the vigour which characterises the plant in the Calcutta Gardens.

I am not aware that any experiments have been made with the leaves of the Paraguay Tea plant in India, but I certainly think that some effort should be made to ascertain what value the tree would be likely to prove to the inhabitants of this country, especially as the product derived from it holds such a high reputation in all the countries of South America, and is exported in such large quantities. Why should not India also export Paraguay Tea?

PRODUCE AND PLANTING.

Tea in the Caucasus.

Writing in the *Pall Mall Gazette* about the resources of the Caucasus, Mr. E. A. Brayley Hodgetts says: "Of late years the great tea merchants of Moscow, notably the celebrated firm of Popoff, which has estates in China and offices in Mincing Lane, have started tea plantations in the Caucasus. These plantations, which were first tried as an experiment, have answered wonderfully well, and already large quantities of this Caucasian tea have been placed upon the Russian market. The first tea raised was sent to the late Emperor Alexander III., who had the courage to drink it, and pronounced it to be excellent. As nobody has ventured to ascribe His Imperial Majesty's premature decease to this cause, we are compelled to assume that this Caucasian tea is harmless as well as palatable. When I was travelling through the Caucasus I was very much surprised and amused to come against numbers of heathen Chinese, in correct Celestial attire—pigtails and all complete. They formed a most incongruous element in the scenery. I discovered that these gentlemen were tea-planters, who had been imported along with their own tea, and were now engaged in betraying their country's secrets to the barbarian. There is a colony of these Chinamen on the Caucasus. They have brought their houses with them, together with their manners and customs, and they get on uncommonly well."

Last Week's Tea Market.

The *Produce Markets Review*, in commenting upon last week's tea sales, says: "Prices for many descriptions of Indian tea have declined to a level which compares favourably with the lowest point touched in previous seasons, and now that the trade have reduced their stocks of old bought tea, a much brisker inquiry is probable. The strong statistical position, as will be seen by the figures below, is almost certain to have a steadying influence on prices, and it would not be surprising if some grades increase in value. It is a long time since the stock at this time of year has been less than in previous seasons. This is in a measure attributable to the smaller import, the falling off being 1,466,000 lb. The principal point, however, is the large reduction since the beginning of June, the stock then standing at 38,213,000 lb., or an excess of 5,978,000 lb. over the previous year. This, it will be seen, has not only been wiped out, but the quantity in the bonded werehouses at the end of the month is less by about 700,000 lb. than in September last year, the increase in consumption amounting to 5,089,000 lb. At this rate the estimated increase in the supply should be easily absorbed and, if the exports to other markets continue on the same increasing scale, the quantity available for this market may not show any excess of importance over the preceding season. This, coupled with the material diminution in the stocks of other growths, is almost certain to have a stiffening effect on the market later on, although heavier supplies coming forward will probably check any advance of importance for the present. The quantity of Ceylon tea offered this week has again been moderate, and, with a good demand, recent prices have been well maintained with occasional slight advances, and, as the quantity to be brought forward next Tuesday will show a further falling off, a strong market may still be expected. There was brisk competition for all grades, medium broken pekoes being particularly sought after, and there was very little to be obtained in these descriptions under $7\frac{1}{2}d.$ per lb. The supply of thick liquoring teas continues very small, and the few parcels showing extra colour in cup realised full prices. Common kinds remain firm at about late rates, $5\frac{1}{4}d.$ being practically the lowest quotation."

The Art of Adulteration.

The report of the Local Government Board shows that tea continues to be free from the distinguishing touches which once marked it when the bulk of it came from China. "Coffee" is still found to consist of chicory in large quantities. One sample sold as "French" contained as much as 80 per cent. Between seven and eight per cent. of the samples of sugar were impure, the impurities generally being an aniline dye used to colour the white crystals of beet sugar in imitation of cane sugar.

Exchange and the Tea Industry.

A correspondent writes: "I observe that in one of your late issues opinions were quoted, that with a high exchange foodstuffs on tea gardens were cheaper, and that the European staff required less pay. With regard to the former it is difficult to see how the rate of exchange can affect the price of foodstuffs, say, in Assam, and with regard to the latter I can only say that, notwithstanding the fall in the rupee, the pay of the European staff generally has got smaller and smaller during the last twenty years, while bonuses, commissions, and some other perquisites have almost entirely disappeared. The argument in favour of a low rupee as far as tea is concerned seems to be that the sterling value of tea and the cost of labour in the tea districts are not affected by the exchange; therefore, given a low exchange, it takes fewer pounds of tea (in sterling) to pay the Indian expenses. I suppose the same rule applies to most Indian exports.'. —*H. & C. Mail.*

PROSPECTS OF THE TEA TRADE.

A Vague rumour has been circulated that one of the most firmly established of British institutions—the five-o'clock tea table—is showing signs of approaching dissolution, says the *Financial News*. The news induced a representative to approach one of the leading tea brokers in the City, Mr. George Seton, of 120, Bishopsgate-street Within, to obtain an authoritative opinion on this point in particular, the effect of the alleged approaching event on tea shares, and the prospects of the tea trade generally. Mr. Seton believed that the rumour was utterly unfounded, and that the excellent custom was as general as ever.

"The consumption of tea," said Mr. Seton, "is steadily increasing among all classes, and I may tell you in confirmation of that statement that during last month alone the statistics show an increase of over 1,000,000 lb. above those of September last year."

"Is it not the fact, however, that many eminent medical men discourage the practice of tea drinking?"

"It is; but I am not so sure that even they themselves practise what they preach. The late Sir Andrew Clark, I believe, was an example of this class of Mentor. He is said to have often condemned the five-o'clock tea, and then gone straight home to enjoy the luxury at his own house. What the doctors really condemn, and ought to condemn, is the way in which tea is often prepared."

"Does that remark apply to all tea?"

"Well, China tea does not require the same strict attention as Indian and Ceylon. The latter now form nearly nineteen-twentieths of the consumption, and only the cheaper qualities come from China. This British tea is excellent, and gives a strong, dark liquor, quite equal, if not superior, to many of the China teas, but it requires a little more care in preparation."

"Does the darkness of colour indicate any superior quality?"

"Not at all. The light, straw-coloured liquor was quite as good and strong; but housewives imagine that if tea produces a good dark shade it is stronger and better, and so the growers humour them by treating the leaves in a particular way."

"Are you in favour of still further reducing the duty on tea?"

"Well, I am one of those who think there is no hurry for that. At the present time we may take the value of China tea as about 4d. a pound and the Indian tea at 8d. a pound (without duty). If you

add the duty, which is 4d. per pound weight, you find that the duty on China tea is 100 per cent., while that on Indian tea at 8d. is only 50 per cent. A reduction would therefore be more favourable to the China than the Indian tea, and the result would be that a large quantity of cheap rubbish would be put on the market. In course of time, too, the China, or non-British, tea trade would probably revive, and in that way the interests of companies and others engaged in the Indian tea trade would no doubt be injuriously affected."

"Is that view held generally?"

"No. There is another party which holds that a reduction of duty would lead to increased consumption and increased business. They do not think injurious competition such as I have pointed out would be likely to follow. However, I hold to my own views on the subject."

Our representative afterwards called on Mr. Wilson (of Messrs. Gow, Wilson and Stanton, tea brokers, 13, Rood-lane, E. C.). Mr. Wilson insisted that five-o'clock tea was as popular a custom as ever, and could not imagine how it could be supposed to be falling off. "Not only is it as popular as ever," he said, "but it is rapidly spreading, not only here, but on the Continent. The great bulk of the tea sold is consumed by the masses. Even if the five-o'clock tea were suddenly to cease as a 'society' institution, it would really have little or no effect on the total consumption."

"Can you give me any figures in regard to the home consumption?"

"I can. You will see from our circular for October that for the four months from June 1 to September 30 this year there has been an increase of 5,000,000 lb. in the quantity of tea delivered in England over the quantity received for the same period last year. That year only showed an increase of 2,000,000 lb. over the corresponding period of 1896. That does not look like any check in the habit of tea-drinking."

"It is said that there is over-production of Indian tea. Is that true?"

"Quite the contrary. The estimated surplus of the crop for the whole of this year over that of last year is only about 3,000,000 lb., while, as I have already said, the consumption for only four months has risen by 5,000,000 lb. over the figures of last year. As a matter of fact, I anticipate a deficiency this year—a circumstance that has only occurred twice since 1889. The supply will therefore be really under the demand."

"Was there not a decrease in the home consumption last winter owing to a boom in cocoa?"

"Well, there was a slight decrease, I admit; but it was a purely temporary effect caused by immense quantities of new cocoas being thrown on the market. Dealers had to stock all these cocoas; but I think you will find that, as a matter of fact, the great bulk of that cocoa is still in stock and unsold. The figures did not indicate the actual quantities consumed, but only the amount delivered for consumption."

"Then you think the prospects of the tea trade, as regards the producer, the shareholder, and the merchant, are good?"

"I certainly do. Tea drinking has now become such a firmly-established British institution that it bids well to last in all its vigour for many years, if not centuries, to come. Holders of shares in sound tea companies have nothing to fear."

LEAF PLUCKING, &c.

A WRITER in the *Pioneer*, under the *nom de plume* of "Sirocco," seem to have rather electrified the planting districts by unfolding a plan for giving a better tea and not reducing quantity. Had this gentleman lived a few years ago, doubtless his services would have been eagerly sought, but he comes with his theory a little too late in the day, as tea at 6 or 7 annas will not admit, as it did in former years, of experimental dodges such as we have heard were practised by one company some few years ago. We never exactly heard the end of this experiment, but the natural presumption is, that it was not a rabid success, else we would have heard more of it. This oxidation system, as it was called, was supposed to be kept a profound secret, and was to add a penny or two pence per pound to the average of the happy possessor's crop, but alas! the best laid plants of mice and men, &c., were again exemplified, and if we mistake not, the result was a 1d. or 2d. per pound less than the average of the district, and teas were denominated toast and water, and hungry beggars looking around for something to put quali some kind into them. The *nom de plume* "Sirocco" has vividly bro up these lights of former days, but we can scarcely think that "Sirocco" now writing and advocating going round a garden e five days, and picking off everything that put its nose out, is same "Sirocco" who was to revolutionise the system of tea-mal some few years ago. Of course, it is difficult to lift the veil and out who "Sirocco" is, but we had thought that a paper of standing of the *Pioneer* would have made somewhat more sure o facts before publishing a thing of the sort.

About 15 years ago a young planter in Cachar, on his blush as a Manager, startled the community of planters commencing to treat his garden on the lines laid down "Sirocco," and at first his triumph was great, as he fo ahead in outturn, and the success and remarks of his neighb began to dwindle away for a time, but later on murmurs a were heard, which continued to swell till the climax was reac when rumours were afloat that a change of management was cont plated, and the undaunted passed on to another district, to a electrify the planting community by his "Naya dustoor." Na ally there is not much to talk of in the districts but tea and making, and any one can imagine better than the writer describe, the sensation which any new departure in any way conne with cultivation or manufacture is criticised and discussed; shakes of the head of the wiseacres, who decline to commit th selves in any way, but who eventually are always ready with told you so," no matter how the experiment turns out. "speech is silver, but silence is gold" is nowhere better exempli than in the tea districts. But to our subject. Our young b if he did nothing else, gave the districts he visited a good dea amusement in the way of argument and discussion, but alas! the knoweth him no more. It seems to us that it is a most insid sort of thing for a paper like the *Pioneer* to publish a letter dea with one of the most, if not the most important functions in mak tea pay without having satisfied itself that there was some truth likelihood of what they were writing about being fulfilled, and consider that it might lead to very serious damage being done an estate by some of the younger bloods trying it on. The o members of the planting body are too wise to be led into tempta in this way, but it does not require much imagination to conc that some of our younger ones, goaded into trying to do somethin appease the wrath of agents, might go in for following this sys out, and doubtless as we have said above, blinded from perha few weeks' results, wreck the prospects of the garden for that yea

The commonest laws of supply and demand may be applied to tea bush as much as to the price of the tea which it makes, and less a liberal growth of wood is allowed to be made, the bush comes weak and emaciated, and cannot possibly give a strong fl which is necessary to give a good liquor. It is a curious fact, one which is well established, that a bush under a system of co plucking thrives and becomes more vigorous under the treatm whilst if fine plucking has been pursued for any number of ye the bushes become puny and weakly, and look as if they had no in them. A great deal, we consider, of the complaints of wan grip in the liquors of Cachar and Sylhet teas is due to the plucking which has been going on in many gardens during the five or six years. Look down the list of teas sold from those tricts, and there is precious little difference in the averages betw *teelah* and *bheel* gardens, and *bheel* gardens have been notorious their weak watery liquors. How are we to account for the fal off in the fine prices attained by many gardens in these two distr as well as in a good many instances in Assam? Until this yea was rare to see a 7*d.* average from Assam, but unfortuna this year it has been of very frequent occurrence. How we to account for this deterioration if not in some such way a have alluded to; partly no doubt, it may have something to do the atmosphere, but not entirely, and we cannot think our plan have lost their cunning in preparing the leaf. No, we must for the cause, or at any rate part of it, in the treatment of bushes, and no doubt this deterioration, making all due allowa for climatic influences and a "slump" in prices, have been cause some way in the treatment the bushes have been receiving the few years, and we think that sufficient attention has not been to this. It is only human nature if agents keep "dikking" a prices, that planters will pluck finer to save their own reputa but we doubt the wisdom of it in the long run.—*Communicat the "I.P.G."*

UNEXHAUSTED MANURES.

The value of unexhausted manures has for years past been a fruitful source of disagreement 'twixt landlord and tenant in every county of the three kingdoms. It is a subject on which much might be written, but we do not know that any good purpose would be served by going into it as exhaustively as our space would permit at a time when it has been so thoroughly discussed elsewhere. The report of the Royal Commission on Agricultural Depression, which has recently been published, deals with the matter, and the current issue of the *Journal* of the Royal Agricultural Society of England also devotes much space to it in an article by Sir John Bennet Laws and Sir Henry Gilbert, whose views upon this, and every other agricultural question, must always be reckoned with. This article deals with the report of the Royal Commission, but devotes most of its strength to the consideration of the value of unexhausted manures. The experiments at Rothamsted are cited as instances of the views set forth.

In considering the value of manures which may be lying dormant for a season in land, many circumstances must be taken into consideration. Local conditions must be thoroughly understood; the weather since the application of the manure must be looked to; and last, but by no means least, the valuer must have a thorough knowledge of the soil and its constituents. Given all these data, a certain effort might be made to put a monetary value on the manures which an outgoing tenant may be leaving behind him in his holding. But, as we said before, the subject is one fruitful in disputes between landlord and tenant, and, we fear, will always remain so. Legislation on the subject may or may not—opinions differ—be advisable or necessary. The farmer, who looks to the law to protect him, knows that it takes years of toil, and labour, and the expenditure of capital to put land into what in a horse we should call "condition." No matter what form of manure is used, a certain proportion of it remains, for a time at least, dormant. It may safely be said that all manures must of necessity remain a certain time in the land before their action as plant foods commences. The experiments at Rothamsted date back over a considerably longer space of time than do any others that we know of. In this way they are of considerable value as given certain definite results under certain known and well understood conditions; but this does not remove them from the position of being mere local experiments.

The use of artificial manure, as manure, is probably not yet more than half a century old; before its advent the farmyard was the source the farmer drew on for his top-dressings, and old leases stipulated very strictly against this source being ever suffered to fail. Farmyard manure came as a natural fertiliser to the farmer; it was only when the chemist demonstrated the value of the artificial manures that they gradually came into use. But it is with values from a monetary standpoint, after they have been put into the ground, that we are now concerned. Legislation, it seems to us, cannot do much to aid the farmer in assessing the value of the manures he is leaving behind, in the ground. That there is a value is well known, but the law cannot put an arbitrary price on it.

Summarising the Report of the Royal Commission, the main conclusions arrived at on this point are:—

1. When manures containing organic matter, such as those produced by the consumption of hay, straw, cakes, corn, etc., have been applied to the soil and grown a crop, the unexhausted residue of their fertilising constituents is yielded up to future crops only gradually, but much more rapidly on light than on heavy soils. Much the same may be said when organic matters, such as rape cake, are directly used as manures.

2. The value of the manure produced by the consumption of different cattle foods varies very greatly, and depends upon their composition. . . .

3. When nitrate of soda is used as manure, its nitrogen does not enter into fixed combinations within the soil, but nitrate is dissolved in the soil-water, and unless taken up by vegetation, much passes into the drains, or into the subsoil beyond the reach of the roots of the crops. When salts of ammonia are used, part of the ammonia is temporarily taken up by the soil, but it is, more or less rapidly (according to the character of the soil and of the season) converted into nitrate, and is then subject to loss by drainage as when nitrate of soda is used. The loss by drainage will, as a rule, be the most when these manures are applied to grain crops, but materially less when applied to root crops or to permanent grass, as these crops have a more extended period of growth, tending to keep the soil-water nearer the surface, and to greater utilisation of the nitrogen.

4. When these artificial nitrogenous manures are used for grain crops, they leave some nitrogenous crop-residue (stubble and roots); the more the greater the amount of increased produce due to the manure. When used for root crops there will, as a rule, be much more of the supplied nitrogen recovered in the crop than in total produce (grain and straw) of a grain crop. When applied to permanent grass there will also be much more of the supplied nitrogen recovered in the increase of crop than when applied to a grain crop; and there will at the same time be more crop residue in the case of permanent grass than in that of a grain crop.

5. When superphosphate, basic slag, kainit, or salts of potash are applied as manure a portion of the phosphoric acid and potash is readily taken up by vegetation; but a large quantity soon enters into fixed combinations within the soil, especially in the case of the heavier soils, and this is very slowly available to future crops Hence the compensation value of the unexhausted residue of these manures is very small.

6. To draw a distinction between the landowner's and the tenant's fertility, and to assign a commercial value to the latter, must always be a difficult matter; and especially must it be so, as some soils contain vast stores of natural fertility, and others very little. It is to be hoped that the evidence which has been brought forward, and the comments upon it, may be of some service to those who are called upon to act as valuers in cases where questions of compensation for unexhausted manures become subjects of dispute.

The Commissioners spent much time and labour in examining witnesses and in collecting evidence, but we do not see that we are any further advanced by the result. The whole difficulty lies in the proper difinition of the *meum et tuum* as between landlord and tenant. Each side has a much more comprehensive view of the former than of the latter, and we do not think that a Royal Commission or the House of Commons can do very much to finally settle the point. The point that all these varieties of detail accentuates is that valuation that may be quite right in one case and in one locality may be quite wrong in another case or in another locality. Legislation, therefore, to be based upon common sense, must insist upon valuations being the results of, and based upon, experiments of vegetable growths. How experimental plots are to be protected and their results measured upon every farm we cannot quite see, but it is evident that nothing less will serve to arrive at a true measure of the values of unexhausted manures and feeding stuffs. Indeed, it is certain that plots of unmanured ground would have to be left in every field in order to arrive at a comparison between the manured and the unmanured soil. So that as this seems to be impossible, we cannot see how further and stricter legislation on the lines of the Royal Commission's report will help either the farmer or the landlord, although we do see how it might be an excellent thing for the land agent and valuer and the solicitors of both sides.—*Land and Water.*

THE CURRENCY QUESTION.

Mr. E. Harcourt Skrine has addressed a long letter to the Secretary of State for the Colonies, to go before the Currency Committee. He criticises the Memorial of the Planters' Association of Ceylon and submits proposals very similar to those of Mr. H. Dunning McLeod, except that where Mr. McLeod advocates the minting of sovereigns and half-sovereigns at Calcutta Mr. Skrine proposes the minting there of one 12*s.* 6*d.* gold coin, which—taking exchange at 1*s.* 3*d.*—would represent Rs.10, and so fit in with the existing Indian and Ceylon note issues. The sovereign would, he observes, necessitate an entirely new Note issue and is in itself a coin of too high value for the currency requirements of a native population. On the other hand, a 12*s.* 6*d.* Indian coin might at home largely supersede the half-sovereign, which is said to be very uneconomical as not wearing well.

The letter referred to is as follows:—

New University Club, St. James Street, 9th May, 1898. To the Right Honorable J. Chamberlain, M.P.

Sir,—As an owner of tea property in Ceylon, I have the honor to offer some remarks on the subject of the currency which has, I understand, been dealt with in a memorial to the Colonial Office by the Ceylon Planters' Association. That memorial had not been published

when I left Ceylon last month, and it was, therefore, not in my power to address any representation on it through the official channels, but, inasmuch as I deduce some very different conclusions from the premises upon which the case for the planter is there argued, I venture to hope that I may be allowed to submit this letter for your consideration.

In so far as the Planters' Memorial is descriptive of the mischievous results to the Ceylon Tea grower from the enforced contraction of the currency, it must command the loyal support of all producers, but, when it goes beyond this, to recommend as a remedy the recoinage of silver on the basis, as I understand, of a somewhat lower Exchange for the rupee, I think it is time to bring to light some of the fallacies that in my opinion have obscured the judgment of the drafters of that memorial.

To instance these fallacies I must refer you to clauses 20 and 26 of the memorial.

The concluding paragraph of clause 20 says: "The rate for Peasant Labour in the Central, Western and Sabaragamuwa Provinces appears to have remained fairly constant at about three days' labour for a rupee, but that rate had only recently been attained in 1870. The rate in 1864 was generally a little lower."

Clause 26 says:—"With reference to the possible readjustment of local wages and prices measured in silver, while we find that there is in Ceylon a slight tendency towards increasing wages and a more general tendency towards increasing prices such increase bears no actual proportion to the progressive decline in the gold price of silver and it can hardly be attributed thereto. It is our opinion that the date of such a general adjustment of wages and prices is uncertain—that it will probably be remote, and that it may be postponed for an indefinite period of time."

The object of both these clauses is to establish the contention that India and Ceylon as silver-using countries are incapable of re-measuring their commodities in gold. I admit that there is much apparent justification for this contention, opposed though it be to an inevitable natural law, but the fact that it is so opposed should have led the planting body to regard their inferences with suspicion.

The Planters' Association accepts the fact that the rate for peasant labour has remained constant at about three days' labour for a rupee from 1870 to 1898 as proof that the decline in the gold price of silver has not resulted in a proportionate rise of wages. It is the purpose of this letter to show that while the labour wage has, it is true, remained constant at three days' labour for a rupee, the value of that wage to the cooly has been enhanced fully 40 per cent. during that period—or the equivalent of the fall in silver—by compensating advantages.

To trace these it is necessary to give a brief review of the labour wage for the past 34 years.

The Memorial admits that (1) during a period of par of Exchange, 1864 to 1870 the cooly wage was rising to some slight extent. That rise was commensurate with a stable trade price for coffee, and may fairly be taken to indicate a normally appreciating labour wage.

(2) A second period, 1872 to 1881, was a period of great inflation, coffee prices rising from 65s. per cwt. to 130s. This inflation was reflected in Ceylon by correspondingly higher cultivation. Labour that had in previous years been paid off after crop, to return to distant homes in India, was kept on for manuring and other works. Consequently the normal condition of a slowly rising wage was arrested, and made up to the cooly by this new found employment during the slack season. This period of high cultivation, the latter years of which balanced the first fall in silver, may be said to have ceased in 1881 when leaf disease and a collapse in the price of coffee brought the country to the verge of bankruptcy. It was succeeded by

(3) A period of transition from the cultivation of coffee to that of tea. During this period, 1881 to 1885, the cooly wage was, it is true, still constant at three days' labour for a rupee, but the coolies were often not paid at all, and on some estates worked for years on a bare subsistence in rice. On estates worked with reserve capital, a very vigorous task was exacted, such as is certainly quite unobtainable from the cooly of 1898, and a fuller value to the producer was undoubtedly obtained for the same wage. The argument of the apparent uniformity of the wage at the period preceding tea is, therefore, of little account. The coffee enterprise, while favoured by the exchange, may be compared to a ship with a favouring breeze struggling vainly against a maelstrom. Indeed, so disastrous to abour was the ruin of coffee that, notwithstanding the collapse of silver which accompanied it, wages that should have risen accordance with a natural law, were actually lower, estimated in balance of earnings available to the cooly than they were when exchange was at par. The natural result of all this was that country was being rapidly denuded of coolies. With these conflicting influences at work, it is idle to assume that the uniformity wage had, up to 1885, anything necessarily to do with the questio

Period 4.—Subsequent to 1885, the uniformity of wage argum is still further discounted by the altered circumstances to the cooly tea. Whereas in coffee, a large proportion of the labour force paid off to return to their homes at the end of crop, the women t remained worked half time, and the children not at all, the wh Tamil family finds, in tea, a constant full wage all the year round, a the women and children—the least useful laborers in coffee—h become the labour most in request in tea. The wage continues same "three days' labour for a rupee," but the earnings of the Ta family have increased fully 40 per cent., or very nearly, if not qu the equivalent of the fall in the gold value of silver, which the Pla ers' Memorial contends has had no such result. These advanta to the cooly (equivalent to a direct rise in wages) have been furth added to by improved journey facilities to India. The Southe Indian Railway to Tuticorin, made in 1875, gave the cooly direct co munication with his Indian home, superseding a toilsome march many hundred miles by the circuitous Northern Ceylon route Mannar, a route which was quite impracticable for weakly wom and children. I am satisfied that this view of the question has be entirely overlooked hitherto, and that, if it is fairly sifted, it will found that the cooly has been more than compensated for the fall the purchasing power of his wage by the increased volume of wa earnable, and by easy access to his country.

The contention of the Planters' Memorial—that prices have mained unaffected by the fall in silver—can be similarly tested the history of the rice market. This article less than any oth produce lends itself to re-measurement with the rise or fall of precious metal used as currency, because it is cultivated on lan that can grow little else.

It will be found that previous to the great famine in 1876, rice w selling in Kandy at R3 per bushel, and in 1895, previous to the l famine at R3·50, or a rise of 16 per cent. The latter price, howe by no means represented the real rise in value paid to the Indi producer, for his cost of transport in 1896 had been enormously duced by railways and cheaper freights. If allowance is made this, it will be found that the price received by the Indian r grower in 1896 was some 30 to 40 per cent. higher than in 1875, that here again the natural law of re-measurement of the commod in the currency had been at work.

In these two main instances—the cooly wage and the price of r —a nominal but deceptive sameness of rate in Ceylon is used as argument to support the contention that these commodities ha not re-measured themselves in silver, and therefore, will not measure themselves in gold, if the latter currency is resorted I arrive at the opposite conclusion, and am of opinion that if depletion of the Indian original currency—silver—is rectified by influx of gold to restore the equilibrium between currency and co modities the producer equally with all other classes—will be bene ed. Mr. Allan Arthur, in his *Standard* letter has shown the d advantages certain to recur by a partial re-opening of the mints silver, which is what the Ceylon Memorial advocates. The result Ceylon Tea, of such a policy, would be to foster the existing ov production, which is likely, in any case for some years to be a grea hindrance to profits than the recent high Exchange.

On the other hand, the introduction of a gold standard will ha the following beneficial effects:—If the transfer is made at a f rate, and I consider a fair rate to be that which was ruling before t American Legislation which led to the closing of the Indian Mint 1893, and which I will take for this and other reasons, at 1*s.* 3*d.* rupee—the results to the Tea Producer will be (*a*) he will hav fair amend made to him for the unduly high rate recently forced up him; (*b*) the stringency of the money market, as evidenced by p hibitory Bank rates of interest will cease; (*c*) the English invest will acquire confidence and lend money on mortgage in Ceylon a per cent. where he would not now (under the uncertainty of e getting his capital back) lend it at 10 per cent; (*d*) there will b mitigation if not an end to the recurring periods of inflation a depression which have been most injurious to sound enterprise a must continue to occur with an untrustworthy currency mediu There will be less phenomenal profits, but they will be consta

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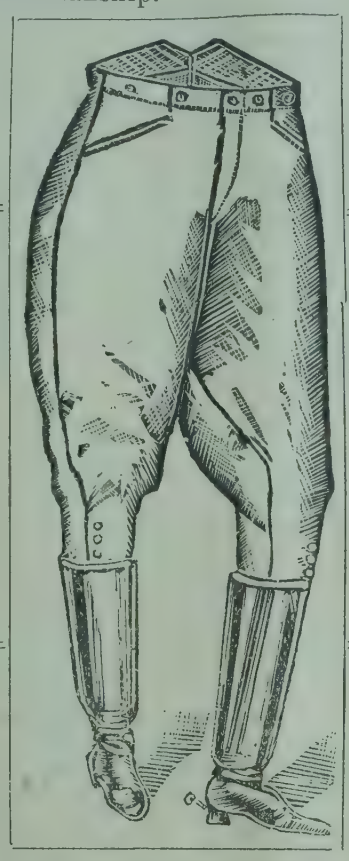

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Putties 8 ft. long
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Box Cloth Leggings
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Leather Leggings
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Read this letter; it will convince you that we *can* make Breeches. **Mr. H. S. Dickins,** of Yercaud, writes: "*The Breeches received; they fit me perfect. I can, with confidence, recommend you as Breeches Makers to all my friends. We get our kit from Bombay, and have to pay about double your price.*"

[w. 1-10-98—31-3-99.] **E. D. SMITH & CO., MADRAS.**

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[w. 15-10-98—14-1-99.]

TO PLANTERS.

PLANTERS WHO REQUIRE

Estate Tools, **Bricks,**

Stores, **Tiles,**

Medicines, **Portland Cement,**

Machinery, **Ironwork (repairs, &c.)**

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are requested to communicate with

THE INDIA TRADING CO., Ld.,

11/12, 2nd LINE BEACH, MADRAS.

Prices on application.

(*e*) The transition to gold will furnish the opportunity for reconsidering the cooly wage. If the Southern Indian rate of 4 annas for men and 2½ annas for women commands a full supply of labour there, the Ceylon rates of 6 annas for men and 5 annas for women, taken in connection with the new journey facilities, would appear too high. At any rate the subject would have to be re-considered, if only to supersede the custom of making profits on rice which has always been a considerable factor in Ceylon in the wage question. These profits are likely to be very considerable if rice comes to be re-measured in gold, and, being always open to misconception, it would be better to abandon them in favour of a reduced wage. (*f*) The steadiness given to the cost of production would induce the planter—instead of looking to the fall of Exchange to help him—to develop his own latent economies. There is no doubt that labour is not nearly as efficient as it might be, estates having been flooded with new and untrained coolies supervised by young men from England who are gaining their experience at the expense of the Industry. (*g*) When these results have been worked out, it will be found that there is little to fear in the competition from silver-using countries on which so much stress is laid in the Planters' Memorial. Our China competitors will be unsupported by cheap capital, as in Ceylon, and rice—the food of the China cooly—must rise in price as the gold countries purchase it. The quality of China labour must also deteriorate in proportion as it is ill-paid and ill-fed.

I have ventured to suggest the transition from a Silver to a Gold currency at the rate of 1*s.* 3*d.* per rupee not only because it appears a *just* rate, but also because it will lend itself better than any other to the double necessities of England and India, seeing it would be represented by a gold coin the equivalent of 12*s.* 6*d.* in England R10 in India. The present stock of rupees is not more than cient for token requirements, and it must be remembered tha burden of currency work in the East will always fall on the t coins, *e.g.*, in monthly payments for labour the individual wage deducting food supplies but seldom reaches R10. This fact dis of the idea that the demand for gold for circulation in India ever in any way compare with the like demand for it in Eng where the labour wage is so much higher, and food is not made of the terms of payment.

This letter, of course, accepts the theory that the Indian Go ment was justified by the cyclonic disturbance to the curr created by American legislation, in contracting the Indian curr to meet a special danger; but the object having been served, bound to revert to a sound principle which, at the present stag only mean a *bonâ fide* Gold Currency for India.—I have the hon be, Sir, your obedient servant,

E. HARCOURT SKRI

MARKET REPORT.

COFFEE.

The *Commercial Record* (*London*) of 14th ultimo says :—

Supplies at public sale have been beyond requirements and conside quantities of London-cleaned imported in the early part of the year much pressed for sale. A few lots of Ceylon sold at full prices

FRESH STORES.

A large Consignment has just been unpacked consisting of Oilmansto Tinned Provisions, Luncheon Delicacies, Jams, Crystallized Fruits; a good assortme of Cadbury's Chocolate Drops, Gruyer Cheese, &c., &c.

Copies of our new Revised Price List are now available.

Great care is taken in the selection of goods for Out-station Clien

ROYAL EMPORIUM,

BANGALORE

[w.—3-9-98—t.f.o.]

Agents for LEA & PERRINS' WORCESTERSHIRE SAUCE.

CROSSE & BLACKWELL'S, LTD.

By Special Warrant Purveyors to The Queen AND Empress of India.

CELEBRATED OILMAN'S STORES.

[w. 1-10-98—t.f.o.]

generally speaking extreme flatness has prevailed, and a decline in prices of fully 3s. per cwt. has been accepted for the bulk of the supplies, which consisted of undesirable qualities; some fine colory Colombian realised, however, extreme rates. "Futures" have declined, although important sales were made, closing rates being :—

London	...Santos	...December delivery	...	30s. 6d.
New York	...No. 7 Rio	... „ „	...	5.55 cents.
Hamburg	...Santos	... „ „	...	31 pf.
Havre	...Santos	... „ „	...	37½ francs.
Holland	...Good ordinary Java	...	...	35 cents.

The next Dutch Trading Company's sale is announced for Tuesday, the 18th inst., when 21,100 bags 20 cases Java will be offered, against 26,000 bags 32 cases in 1897. Good ordinary Java is valued at 35 cents.

Imports Deliveries and Stock of Coffee in London are as follows :—

		Stock.		Imports.	
		1898.	1897.	1898.	1897.
West India	... tons	498	335	1,656	824
Ceylon	... „	131	171	322	510
East India	... „	1,711	1,690	5,594	5,155
Mocha	... „	530	448	751	534
Brazil	... „	4,070	2,188	3,532	2,119
Other Foreign	... „	12,038	5,962	28,047	21,690
Total	... „	18,978	10,794	39,902	30,832

		Home Consumption.		Export.	
		1898.	1897.	1898.	1897.
West India	... tons	279	277	1,216	560
Ceylon	... „	115	149	183	314
East India	... „	2,019	1,909	2,971	2,367
Mocha	... „	582	428	136	186
Brazil	... „	771	1,061	1,664	2,105
Other Foreign	... „	7,249	7,422	13,432	11,403
Total	... „	11,015	11,246	19,602	16,935

The preceding figures exhibit—

In the imports an increase this year of	9,070	tons.
Home consumption a decrease of	231	„
Export an increase of ...	2,667	„
Stock an increase of ...	8,184	„

The following are the particulars of the week's auctions :—

CEYLON.—*Plantation.*—2 casks 6 barrels sold—small 92s 6d, middling colory 106s, peaberry 90s.

EAST INDIA.—43 bags withdrawn.

JAMAICA.—6 bags 53 barrels withdrawn.

COSTA RICA.—1,527 bags offered, but only 250 bags sold—small 28s 6d to 35s 6d, ordinary dingy pale 39s, fine ordinary 47s to 48s, fine ordinary to low middling greenish 51s to 61s 6d.

GUATEMALA.—Of 4,749 bags offered about 1,600 bags sold—triage 22s to 27s, smalls 28s to 32s 6d, good ordinary pale 40s 6d to 43s 6d, fine to fine fine ordinary 47s to 53s; London-cleaned, smalls 32s to 43s, good middling colory 76s to 80s, good bold 91s 6d to 92s, peaberry 70s to 93s.

SALVADOR.—Of 576 offered about 150 bags—ordinary dingy pale small 72s, good ordinary dull pale 38s.

NICARAGUA.—10 bags bought in.

VERA PAZ.—Of 800 bags offered 550 bags sold, smalls 24s to 38s, ordinary dull pale 34s to 35s, good to fine ordinary ditto 40s to 46s 6d, fine ordinary gray 48s to 52s, peaberry 48s to 50s.

COLOMBIAN.—Of 3,162 bags catalogued about 2,300 bags sold, smalls 32s to 39s, fine ordinary pale gray 47s to 49s, fine fine ordinary to low middling 55s 6d to 60s 6d, middling dull hard gray 67s 6d to 68s, good middling 71s to 75s 6d, good 80s to 84s 6d, bold 88s, good bold 97s 6d, peaberry 63s 6d to 91s 6d; London-cleaned, smalls 30s to 44s 6d, damaged and dull soft greenish mixed red 53s to 59s, low middling soft greenish slightly mixed 62s to 64s, middling 64s 6d to 69s 6d, good middling colory 72s 6d to 78s, bold 81s to 89s, fine colory 105s 6d, peaberry 60s to 94s 6d.

BOLIVIAN.—32 bags bought in.

PERUVIAN.—141 bags partly sold, London-cleaned, smalls 35s to 41s, bold colory 80s, peaberry 75s 6d to 76s.

BRAZIL.—1,174 bags Santos were bought in.

Receipts in Rio and Santos.

Oct. 12—	1898-9. Bags.	1897-8. Bags.	1896-7. Bags.	1895-6. Bags.
Rio	Holiday	16,000	16,000	13,000
Santos	„	28,000	23,000	25,000
Total 5 days				
Rio	49,000	81,000	54,000	52,000
Santos	91,000	88,000	69,000	71,000
	140,000	169,000	123,000	123,000

Receipts Rio and Santos.

Since July 1	1898-9. Bags.	1897-8. Bags.	1896-7. Bags.	1895-6. Bags.
Rio	1,170,000	1,668,000	1,247,000	926,000
Santos	2,450,000	2,892,000	2,112,000	1,402,000
Total	3,620,000	4,560,000	3,359,000	2,328,000
Crop	—	10,461,000	8,680,000	5,489,000

Exchange 8 2/32 d, previous day 8 2/32 d.

Havre, Oct. 13—Market quiet. Santos good average December opened at 37½f. and closed at 37½f., March opened at 38f. and closed at 38f.

Hamburg, Oct. 13.—Good average Santos December opened at 31¼m and closed at 31m.

New York, Oct. 5.—Closing prices of No. 7 Rio were as follow :—

	Oct.	Nov.	Dec.	Jan.	Feb.
Oct. 12	5·35	5·40	5·55	5·60	5·70
Oct. 11	5·35	5·40	5·55	5·60	5·70

Oct. 14.—Eight catalogues were issued for sale to-day, comprising 521 bags East India, 62 half-bales Mocha, 64 barrels 157 bags Jamaica, 37 bags Java, 1,725 bags Columbian, 252 bags Guatemala, 97 bags Venezuelan, 16 bags Mexican, 88 bags Costa Rica, 236 bags Coban, 302 bags New Granada, 121 bags Salvador, 1,396 bags Vera Paz, and 170 bags Santos. The sales passed with a very quiet tone and the offerings being again of indifferent grade a further decline in prices was registered.

TO-DAY'S HAVRE AND HAMBURG COFFEE TERMINAL QUOTATIONS.

(Communicated by Mr. Edward Nauen.)

	Havre.			Hamburg.	
	10.15 a.m.	12.15 p.m.	3.30 p.m.	10.30 a.m.	2.35 p.m.
Dec. 1898	37½	37¼	37¼	31	31
March, 1899	38	37¾	37¾	31¼	31¼
May	38¼	38	38	31⅜	31½
Sept., 1898	30¾	39	38¾	32¼	32
	Steady. Value.	Steady. Value.	Quiet. Buyers.	Quiet. Buyers.	Quiet. Buyers.

TEA.

CHINA.—The sales this week have been of little moment, says the *Commercial Record* :—

Auctions presented 7,039 packages, and passed off with a dull tone.

INDIAN.—Public auctions totalled 48,900 packages against 50,609 packages last week, and 52,200 packages at this time in 1897.

The better enquiry previously noticed has enabled buyers to deal with the comparatively large quantity brought forward since the 1st inst., without prices being affected to any appreciable extent. Although the quality of most of the Assams and Darjeelings has not been quite so desirable as in September, and quotations were in many instances consequently rather lower, still, it has mainly been of a useful description, and at the present low range of values the teas should go readily into consumption at home, while the exports of British growth shew considerable development.

A fuller selection from Travancore and other parts of South India was included in the catalogues. The assortment generally was not very good and results in most cases were disappointing.

For 37,700 packages on Estate Account 8⅜d per lb. was obtained, contrasted with 9d per lb. for 98,000 packages and 9½d per lb. for 26,203 packages in the two preceeding seasons.

CEYLON.—Only small supplies, comprising 12,900 packages were available *versus* 18,000 packages on the 4th inst. and 16,400 packages a year ago.

Notwithstanding this reduction in the size of the sales there was more irregularity in the bidding. On the whole, however, little alteration occurred in prices. Low common and inferior leafy sorts were occasionally neglected, while medium Pekoes met with scarcely so much support owing to a temporary slackening of shipping orders. Broken Pekoes as a rule were dearer, especially those with strong infusions. Finest kinds brought higher figures.

The average has risen 8¾d per lb. On the 6th inst. it was 8½d per lb., and 8¾d per lb. in 1897.

JAVA.—Nearly 2.000 packages of direct import went off steadily without material alteration.

Deliveries.

The clearances of all Tea (on which duty has been paid) from the London warehouses, as per official returns, were :—

From 1st to 11th Oct., 1898	6,376,520lbs.
„ „ 1897	6,010,274 „

During the week the following have been printed for sale by public auction :—

	Sold. Pkgs.	Withdrawn. Pkgs.	Total offered. Pkgs.
India	43,526	5,396	48,922
Ceylon	11,881	982	12,863
Java	1,617	355	1,972
Total	57,024	6,733	63,757

Also 634 packages from second hands.

Messrs. Gow, Wilson and Stanton's Indian, Ceylon, and Java Tea Report, dated October 14th, 1898, says :—

QUANTITY BROUGHT TO AUCTION IN LONDON
FROM 1ST JUNE TO DATE.

	Indian.	Ceylon.	Java.
1898-1899.	482,634 pkgs.	461,519 pkgs.	18,649 pkgs.
1897-1898.	482,338 ,,	500,300 ,,	16,875 ,,

49,310 pkgs. Indian
13,204 ,, Ceylon
1,975 ,, Java.
} Total 64,486 packages were offered in public auction this week.

Movements of Tea in the whole of the United Kingdom from 1st January to 30th September, as shown by the Custom House returns, exhibit a satisfactory increase in the re-export of Indian and Ceylon Tea. Duty payments of Indian Tea also show a considerable increase. Figures for home consumption are really more favourable than appears at first sight, owing to an exceptional duty payment on about three million pounds of Tea made at the end of September last year.

An encouraging business has for some time been transacted in Indian and Ceylon Tea for Continental and Foreign Markets, this outside competition materially assisting the London Auctions.

Indian. The last two weeks heavy Auctions have afforded a good test of the strength of the market, and supplies have been readily absorbed without reaction in prices, while competition has been general and well sustained. Averages :—"Amal T. Co. Dooteriah," 1/7¾; "Poobong," 1/6.

Week's average of tea sold on Garden Account 1898, 37,815 pk 8·29d. 1897, 38,846 pkgs., av. 9¾d.

Total Tea sold on Garden account 1st June to date 1898, 342,682 av. 8·84d. 1897, 345,689 pkgs., av. 9·11d.

		1898.	1897.	1896.
DUST.	(Fair ordinary, dark liquor) ...	3½d	3¾d	4¼d
FANNINGS.	(Red to brown, strong rough liquor) ...	4d	4¼d	5d
BROKEN TEA.	(Brownish to blackish, strong liquor) ...	6d	6¼d	6¾d
PEK. SOUG.	(Blackish greyish, useful liquor).	6¼d	6¾d	6¾d
PEKOE.	(Greyish to blackish, some tip, useful liquor) ...	7½d	7¾d	8d
PEK. SOUG.	(Blackish greyish, inferior liquor).	5d	5d	5¼d
PEKOE.	(Blackish greyish, some tip, inferior liquor) ...	5½d	5¾d	6d

Ceylon. The Auction comprised only 13,204 pkges., against 18,4 week. Previous quotations were fully maintained with a decidel tendency, whiie the continued arrivals of Teas of very desirable c assisted in strengthening the confidence of buyers. Avg. wort note :—"Associated Tea Estates Silver Kandy," 1/3½. Average fo 8·67d., against 8¾d., for 1897.

Ceylon Tea sold on Garden Account 1st January to date 1898, 8 pkgs., av. 7·66*d*. 1897, 891,599 pkgs., av. 7·68*d*.

		1898.	1897.	1896.
PEKOE SOUG.	(Ordinary leaf; fair liquor) ...	6½d	6¾d	6½d
PEKOE.	(Ordinary leaf; little twist; fair liquor) ...	7¾d	8d	8d
PEKOE SOUG.	(Rather bold leaf; indifferent liquor) ...	5¼d	5½d	5d
PEKOE.	(Somewhat bold leaf; indifferent liquor) ...	5¾d	6¼d	6d

Javas. Competition was good with a decidedly strong market.

PUBLIC SALES OF SOUTH INDIAN TEA.

(AVERAGE FOR ALL INDIA 8·29d.) *October 14th.*

GARDEN.	Total. Quantity	Average. Price.	Broken Org. Pek. or Flowery Pekoe. Quantity	Price.	Pekoe and Unassorted. Quantity	Price.	Broken Pekoe. Quantity	Price.	Pekoe Souchong. Quantity	Price.	Broken and Souchong. Quantity	Price.	Fannings, and Vari Quantity	I
Travancore ...	**2674 p**	**5·83**												
Arienkow ...	20	5¼	...	...	20	5¼	...	...	...	...	...	...	...	
,, ...	12	5¾	...	...	12	5¾	...	...	...	...	...	...	...	
Atchencoil ...	127	5½	...	...	49	5¼	39	6¼	39	5	...	...	...	
Balamore ...	75½c	6	...	...	47½c	5¼ 5½	23½c	7¾	...	...	4½c	4¾	1½c	
Belford ...	160½c	5½	...	...	96½c	5½	57½c	6	...	...	3½c	5	4½c	
,, ...	207½c	5¼	...	...	127½c	5¼	64½c	5½ 5¾	...	...	5½c	4½	11½c	
Bison Valley ...	54	5½	...	...	31	5¼	21	6¼	...	...	...	...	2	
Bon Accord ...	551 p	6¼	...	...	238	6 6¼	154	7¼ 7½	59	5¼	14	5¼	86 p	
Braemore ...	85 p	5¾	...	...	34	5½	32	6¼	...	...	9	5¼	10½c	
Cheroot Mallay ...	62 p	5¼	...	...	27	5¼	...	...	...	...	11 p	5	24½c	
Corrimony ...	70½c	7¾	...	...	41½c	6¼	27½c	10¼	...	...	...	...	2½c	
CRM ...	87 p	5¼	...	...	61 p	5	20	5¾	...	...	5	4½	1	
Glenmore ...	100½c	6	...	...	98½c	6	...	...	...	...	1½c	5	1½c	
Home ...	140½c	5½	...	...	76½c	5¼	57½c	6	...	...	3½c	5¼	4½c	
,, ...	197½c	5¼	...	...	126½c	5 5¼	60½c	6	...	...	5½c	4¾	6½c	
Merchiston ...	86 p	5¾	27½ c	6	27	5¼	22½c	6½	...	...	...	...	10½c	
Poonmudi ...	362	5¾	...	...	157	5½ 5¾	109 p	6½	60p	5¼	...	...	36½c	
Seafield ...	79½c	6¾	...	...	52½c	5¾	25½c	8¾	...	...	2¼c	5¼	...	
SF ...	5½c	5¼	...	...	5½c	5¼	...	...	...	...	...	...	...	
Sth Trav Est Ven...	195	6	37	6¾	76	5¾	31	7½	44	5¼	...	...	7	

IN AUSTRALIA.

MELBOURNE, October 8th.—Holders of China teas are firm in their ideas of value, and in the mejority of cases advances are being asked. The position is an admittedly strong one, and points to one of two things, either a falling off in the demand for Foo Chow description or in advance in prices. The former appears the less probable, such extensive decreases having occurred in the past that a reaction is naturally expected. The position of supplies is an interesting one; 3,000,000 lb. in round numbers have come to hand by the first five boats for the colonies, and cables state that the season will close with an export of 4,750,000 lb. which means another 1,750,000 lb. to come forward. Presuming that Melbourne obtains 1,000,000 lb. of thi total added to stocks in bond gives only 1,902,000 lb. in sight as ava for nine months' consumption, which, without allowing for export de averages 240,000 lb. per month. Stocks in private warehouses, of c may be large; but for once in a way importers appear to have the comfortable position this season. A good business has been done, co over 1,200 packages of Panyongs, buds, and S.O.P.'s at full rates. C continue firm, 900 chests being placed. Indians have also been in de good sales being made. As a whole the market is very firm, an change would, from all appearances, be towards higher values.

MELBOURNE, October 11th.—A catal ogue of 183 chests and 64 half

PLANTING OPINION.

A WEEKLY JOURNAL

WRITTEN BY PLANTERS FOR PLANTERS.

VOL. III.] MADRAS, SATURDAY, NOVEMBER 12, 1898. [No. 45.

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ADVERTISEMENTS.—The charge for line advertisements is 4 as. per line for the first, 3 as. for the second, and 2 as. for the third and succeeding insertions. Five-line (or shorter) advertisements from Subscribers will be inserted for three issues for one rupee; non-Subscribers will be charged two rupees.

DOMESTIC OCCURRENCE.—The fee for inserting a domestic occurrence will be *One Rupee* for each insertion, payable in advance.

N. B.—Remittances should be sent to E. C. Duff & Co., Proprietors, "Planting Opinion," 16/17, Armenian Street, Madras.

IMPORTANT NOTICE.

The Offices of this paper having now been removed to Madras, all remittances should be made payable to E. C. Duff & Co., Proprietors, *Planting Opinion*, 16 and 17, Armenian Street, Madras, who will also attend to all advertisements, &c.

Letters to the Editor should also be addressed to the Madras Office.

SEASON REPORTS.

TO OUR SEASON REPORTERS.

Please post your next reports to reach Madras on Friday, the 18th November, 1898.

Season Reports should be sent to the Printers, Messrs. Addison & Co., direct, and not to *Planting Opinion* Office.

Coorg.

Pollibetta, *3rd Nov.—Weather.*—Smart shower on 1st. Though cloudy, there has been no rain since. *Crops.*—Picking Siddapur way. This side there is no appearance of crop being on till near the end of the month. Preparation for crop in active progress. *Plant-diseases.*—"Leaf" still in evidence in parts. Parts attacked early have recovered. Price of grains has been easier for some time.

COFFEE.

A London correspondent recently observed: "Coffee is now low enough in price, in all conscience, to stimulate consumption." Taking another point of view, the *Financial News*, in an article that we publish elsewhere, remarks that "the present position of the Indian Coffee planter can hardly be described as comfortable, and that the best

he can hope for is a speedy consumption of the Brazilian product now in stock." Our London contemporary also gives a table of prices during the last 23 years, which would seem to show that the evil days of 1882 to 1886 are being repeated. Not a word is said, however, of the fact that low exchage has greatly counteracted the depression in prices, so that 75*s.* to 93*s.* in 1898 means something very different to the planter from what 75*s.* to 108*s.* meant in 1881. Nor is any notice taken of the fact that the fall of sterling prices of Coffee has at least had the beneficial effect of checking production in countries where it might have been vigorously extended had prices been more encouraging. For instance, at the first annual meeting of the shareholders of L. & H. PINTO, Limited, a Company lately established to develop certain estates in Mexico, three products were mentioned as those to which attention had been mainly devoted. Tobacco was one, India-rubber another, and Coffee a third. It will be at least satisfactory to the Indian coffee-planter to learn that Tobacco is being pushed much more energetically than Coffee. The reason is clearly stated. The Company had not found so good a demand for Coffee as for tobacco. Still the demand was good enough, and presumably the price, too, to encourage the hope that Coffee also would repay attention. Mr. PINTO explained exactly what had been done by his firm before the Company was formed, and subsequently by the Company itself. About eight years ago, he and his brother and Mr. RENDON acquired the estate of Mano Marques, in the province of Oaxaca, which they thought was very well situated and would prove a valuable property. But, of course, when they bought a property that was practically a jungle, there was an enormous amount of work to do to put it in order. Having bought the land, they set to work to improve and plant it. In the first instance, they cleared several thousand acres of the land and planted coffee. In the first year they planted between 50,000 and 100,000 trees, and although they made some mistakes at first as to the treatment of the plants, yet they learnt by experience, and they have now a plantation of 300,000 coffee trees. All these are not yet in bearing; if they were, Mr. PINTO believes his company would pay a dividend of 20 per cent. In the case of coffee plants it was four or five years before they got any return; but now that they are beginning to yield, he believes that within a year or two large profits will be reaped from the coffee plantation. The last time he was in Mexico he made a very careful examination of this plantation, and was extremely pleased with the progress that was being made. Touching upon the labour question, Mr. PINTO observed that a gentleman connected with a company which had property near them had expressed his surprise that they had been able to accomplish so much without Anglo-Saxon labour. They were working purely with Mexican labour, and intended to continue doing so, and he believed in a few years they would have as large a coffee crop as any plantation in Mexico.

It would seem from this that there is less nervousness in Mexico about the magnitude of Brazilian crops than is reflected in an article on "A Glut of Coffee," which we reproduce to-day from the *Madras Mail*. There is, we think, a great deal less cause for alarm than our contemporary makes out. It must always be remembered that where "Futures" are operated in, the 'bears' as well as the 'bulls' have a chance of an innings. It is to interest of the former to spread reports of abnormally l crops, and every such report should be received caution. It is unfortunately true that estimates of Braz Coffee crops are exceptionally unreliable. Still, fig regarding the past, at least, are available. Accordin the message of the President of the State of Rio de Jan the average coffee crop of the State from 1881 to 1895 been as follows :—

Between 1881 and 1885	...	..	131,572,011 kilos.
„ 1886 „ 1890	...	..	90,543,270 „
„ 1891 „ 1895	...	...	75,366,276 „

It would certainly appear from this that the time f recovery had come, and there is no reason for alarm if there are signs of such a recovery setting in. Besi current reports are, as usual, conflicting. One writer rem in a Rio paper :—"On Sunday week we overheard a Brazi gentleman remark that 'this rain will be worth a mil bags of coffee to the country.' How correct the propl may be we cannot say, but a drenching three days' rai September after a long drought cannot fail to be of greatest benefit to the coffee plantations. It should remembered that the first blossoms usually appear September." The allusion to a prolonged drought sh be noted by our Madras contemporary. Then, again, read in the Rio *News* :—"If there is a prospect of a fai of the next crop, as many planters allege, why not try effect of fertilizing and pruning? If the coffee trees exhausted by the heavy crops of the last two years, the trees should be carefully pruned as a means of centrating their strength and careful cultivation shoul employed to restore exhausted vitality." Great wits j together; and writers in India and in Brazil have la reminded us, almost in the same words, that Na herself revolts against over-production. So she does aga a vacuum, by the way; which suggests that she lik happy mean.

One more quotation concerning Brazilian crops. Rio *News* states :—"The great variation in the coffee cro Brazil shows that a continuation of mammoth crops is no be expected unless due to a very extensive increase in number of trees coming into bearing from year to y which is the case in Brazil. Now it seems possible that lack of foresight on the part of the planter the old co plantations are threatened with decay, and that m chronic disease and an easy prey to insect pests." We this quotation as received, though it does not appear to correct. At any rate, we read it as intended to reas the despondent believer in excessive crops, and as offe him some encouragement. There is some little relief als the thought that Tobacco is giving still better promise t Coffee in Mexico. If prices of the latter were higher, would probably not be the case, and thus there is a hid blessing in even the depression of prices. Nevertheless, not cheering to hear of sales at 28*s.* per cwt. of San Jamaica, and Ceylon Liberian. Here, too, however, the the consolation that the old high price of coffee in retail sh must disappear if prices such as the above become at all gen On this point, we concur with the *Madras Mail's* rema Present retail prices of Coffee in England are far too h but there is something to be said for those who continu charge thus. Prices of Coffee are extremely varia There is no guarantee that a heavy fall in, say, Octo

will not be followed by a sharp rise in January or February. Every shopkeeper knows that it is easier to reduce prices than to put them back to the old level. Retailers, therefore, will not drop prices until forced; but the competition that is needed to force them to do so has already begun, and if retailers' prices drop considerably there should be an increasing demand and a consequent reaction. It is pleasant to read at a critical time like this that there is talk of an amalgamation of Coffee houses. There is no doubt that with good management these, already numerous, might be increased in number, and in utility. It is when depression of prices is most marked that there is the greatest need of effort directed towards the development of demand. That there is also need of attention to the cost of production and of placing on the market is also certain. As regards Indian Tea we might urge that, to strengthen prices, planters should lessen cultivation, but this is scarcely the right course as regards Coffee, seeing how largely the prices of the Indian berry are influenced by those of Brazilian and other descriptions. It is a course that has already been adopted to some small extent, under the pressure of individual necessity; but it is very doubtful if the reduction of the area under Indian Coffee has had even the remotest influence upon the prices of the product. The best advice we can give our Coffee friends is—reduce cost to a minimum, get as much as you can out of your land, and combine with your fellow-planters to push consumption in old and new markets.

PROSPECTS FOR TEA.

The following extract from a letter from a South Indian planter, now in Europe, has been placed at our disposal. "Tea! Prospects? *Chi sa*? The statistical position is good, extension has stopped or nearly so, and I should not wonder if in a couple of years or so there were a good time for those who have been able to hold on: always provided there is a return to honest currency. It is said that English machinery has not improved China Tea: anyhow, the few machine-made teas from China in the market have found no favour with buyers, the tea being burned. It is further said that China leaf, owing to the distances it is carried before manufacture and so on, is not suited to English machinery. This, however, I doubt, and I expect China, as she is opened out, will improve her outturn." It is but fair to add that the writer terms the above remarks "purely speculative." That does not detract from their interest.

As for the bright future for those who are able to hold on, the above remarks lead us into a digression, as they remind us of something much stronger in a similar strain. This does not relate to a Tea or Coffee company, but it is the richest thing in directors' reports that has come in our way, and the above correspondent's forecast almost make us give it as a "purely speculative" and prophetic model for use by Tea Companies in the sweet by-and-bye. Here are extracts from the report:—"We started this half-year with nothing—we end it in debt; therefore it is a matter for congratulation that we have chosen a banker who will allow us a free leg. We think it necessary to sound a note of warning, however, and suggest very respectfully that it is advisable not to over-run the constable too much. *Verbum sat sapiente.*" "In conclusion," the report runs, "we beg to place on record our unbounded confidence in the company of which we are fortunate shareholders, and we verily believe our most sanguine expectations will be realised—in the sweet by-and-bye; that is, if your funds will only see us through. Your directors now retire from office, and, although they would scorn to make such a proposal on their own behalf, they would humbly suggest that the remuneration of the members of the board be fixed at a higher rate than during last term—say, at twice the sum. (The remuneration was *nil.*) Their duties are arduous and multifarious, and although all have not worked equally hard, the efforts made by some to shirk the responsibility fairly entitles them to their honorarium. In any case, we leave ourselves in your hands, trusting that you will handle us gently, for we are all reared as pets. We are too full to indite more, and subscribe ourselves, Your Directors." Here, again, we must add a postscript in justice to the framer of the above report. The Company—a mining Company in Australia—is now a prosperous and flourishing concern! "Those who have been able to hold on." "That "is, if your funds will only see us through." Australia and India side by side: the same sentiments in the new country as in the very old.

RUBBISH!

Is rubbishy tea to be dumped down in Persia or any other market that will take it, or is it to be cast into the fire? This question has been under discussion in Ceylon lately, and the end of the discussion has not yet been arrived at We might, however, point out that though Persia be a very useful dumping ground, it might be policy *not* to export rubbishy tea, for it must pass as *Indian* tea, if it is shipped from India. And when put on any market it must tend to make particular buyers think that Indian tea is of the lowest! Perhaps Ceylon might be left to play this little game alone, while India resorts to the incinerator or, if it be possible, the chemist's still. We have no means of arriving at the cost of manufacturing Caffeine from the most inferior sorts of Indian teas. If any of our readers can help us, we shall be very much obliged to him. There is no question as to the soundness of the general principle that a reduction of supplies tends towards an enhancement of values. Even the destruction of rubbish—so long as it is *called* 'Tea'—should have an influence on Tea prices; but whether that influence would not be a negligeable quantity is open to question. It may be remarked that Manchester calico printers have recently adopted a much more drastic course, based on a similar general principle. They have lately purchased the works of the Blanefield Printing Company, Limited, for about £20,000, and they propose to break up the machinery and re-let the premises for other purposes than printing. They also invite subscriptions from the trade to carry on this and other good works for the members' benefit. There is a hint here as to a new use for subscriptions raised by Indian Tea-planters! The mischief is that there is usually some enterprising outsider who will persist in smashing up an arrangement such as the above, by starting a new place on his own account; so that the latter end of that industry becomes worse than the former.

SIGNED CORRESPONDENCE.

[Under this head, letters, replies and remarks will only be admitted if signed by the writer. The object is to promote the interchange of opinions, experiences, etc., between planters who are willing to support their remarks with their signatures.]

MANURING.

SIR,—It is rather startling to be summoned by name in this manner to lay oneself open to criticism from the whole world by exposing utter ignorance of any subject, and it is a poor return you have made me for my most excellent suggestion. I did not mean that you were to round on me in this manner, but expected you to induce another victim to write something which I could criticise. Quite a different matter! However, I suppose you have kept evidence that I did make the suggestion, and it is no good trying to back out.

In spite of all, I suppose you may have the remnants of some sort of conscience left, and will therefore assume that you are ignorant of the enormity of the demand you have made upon me. If you are not and have done this thing in cold blood, you will probably refuse to print my opinion of you. You have demanded of me an exposition of my views on manuring—a subject which has more sides to it than I can at present enumerate and every one of which is capable of giving rise to the keenest controversy.

That such controversy, if aroused, may end in supplying me with some of the information I stand in so much need of is undeniable, and it is therefore best to accept your challenge and such hard words as may fall on my head in consequence.

There is probably no dispute of so great interest or so capable of affording grounds for argument as that between the old school of bulk manure men and the new school (if I may so designate a body of experienced planters) who give their faith absolutely to the more concentrated forms, and even call poonac a bulk manure, I believe. I personally, accepting theories on either side with great caution, have the matter more or less under active experiment, having given up some fields to the use of artificial manures alone (including poonac and lime, which are called artificials here), keeping the rest of the estate under the old combination of both kinds; and I think further of abandoning the use of artificials on one other field, though I may say at once that if I do it will be a small one, as I have little faith in cattle manure alone supplying all that is needed in all soils, and I do not mean in any case to exclude lime from such field, as the soil of this place, with the exception of one corner far removed from my cattlesheds, is very stiff and holds moisture longer than any place I know, and it appears to me that constant application of a heavy compost would be likely to result in sourness without the application of lime.

If I had jungle topsoil available, I would not have a head of cattle on the place, for if bulk manuring is required, I feel sure that the scrapings of even inferior scrub jungle are fully equal to the average cattle manure we produce by means of our own cattle or purchase from villagers. This is not an original theory of my own, it emanates from a far more experienced planter than myself, with whom I was at first inclined to disagree; but I have now satisfied myself, both by analysis and experiment, that, in a scheme of combination at all events, there is little to choose between them, except the matter of cost, which generally works out in favour of the soil and the nitrifying properties *alleged* to be possessed by fresh jungle soil and the denitrifying properties attributed in some quarters to fresh cattle manure. I should, however, have even less faith in soil alone than I have in cattle manure alone, except in quantities which might involve a prohibitive cost.

Unfortunately, this is a very small place and planted up to its boundaries, so if I want to use really bulky manures I n retain my cattle.

The experiments mentioned having only just commence cannot offer any opinion, but trust that the opening of the ject in your columns and my confessions of ignorance result in the collection of experiences from those who studied the matter longer and more carefully.

CATTLE MANURE.

To take cattle manure first, we must not lose sight of the yet disproved "denitrifying" scare. With such a demand nitrogen as exists in our trees, any process which results loss of that element would be most disastrous, and if the th is correct, the only saving clause apparent is that the actio said to grow less and less as time goes on, and probably bulk of our stuff is over six months' old before it is appl Has anyone tried experiments with a view to comparing effects of fresh and old manure, and, if so, will he let us kno he was able to arrive at any conclusion? I have never trie separate them, generally mixing the contents of all my together and adding all line sweepings and any other rub lying handy—at times including pulp, and at others omit it—but I have occasionally been pleased or disappointed by res not anticipated: the word "results" must be used in s matters with all reservation, for sometimes one hesitates definitely attribute to a certain change a certain cause.

There is another point very much in dispute, and that is length of time required for cattle manure to be digested by tree, and here again I have frequently been puzzled, having what were apparently immediate effects in some cases, whil others, without any ascertainable cause, they have been so delayed that it has remained very uncertain whether there really an appreciable result from that application.

If it be admitted that cattle manure does pay, the last p is of comparatively minor importance, but it perhaps invo the greater one of what time of the year is the best for appl tion. This has been much discussed, and considerably exp mented on. I myself have tried to come to a decision, with being able to do so. An apparently most decisive experin was forced on me last year by failure of coolies to turn up, if cattle manure becomes available in nine months has utt failed. I manured half a field in September-October, and t had to stop to get on with more urgent work, and did not c plete the manuring of that field till the hot weather carefully marked the dividing line, and from that time to have not been able to detect any difference.

Another point which should perhaps have come before is bed or not to bed." In this district it has been, I think, usua bed the cattle as much as possible, all kinds of materials b used,—straw, fern, dried leaves swept up from the jungles, ju soil, and green leaves and shoots, &c., cut in jungle or on g land and carried in to the sheds. Weeds are sometimes pu and I have not noticed any harmful effects on estates wh this is done.

Lately I have been considering whether this striving a bulk is remunerative; it is, as a rule, exceedingly costly takes out a large proportion of the labour at times when th may be much other work to do. It seems to me that we plant under shade secure in the leaf fall a large amoun humus which is mostly drawn up from a depth greater t that at which our coffee feeds, and if this is the case we wasting time and money in supplying a commodity which not be necessary. The chemical properties of bedding can more cheaply applied in a concentrated form; and very poss the application of smaller quantities of cattle manure pure supply all that is missing in the way of humus. I must sa with great distrust and hesitation, being quite ignorant chemistry, but it appears to me probable that the element wh

is chiefly supplied or chiefly sought for in beddings of all sorts in addition to the more mechanical bulk is potash. Does all the potash so supplied become available? We know that if all the potash now existent in most of our soils were available, it would last out several generations of planters, and yet we have every reason to believe that available potash is frequently much needed. Are we going to work in the right way in applying these costly substances to supply the deficiency? I think not. Mechanical bulk is no doubt the great thing sought for, and I have grave doubts now as to whether it is necessary to such a degree as to demand the heavy expenditure it undoubtedly involves.

Then, to continue the discussion of cattle manure, there are many differences of opinion as to the best method of application. In this I may say at once that when time, labour and the lay of land permit, the first way I ever tried seems to me the best. Have your manure in as fine a state as possible (spread it out thin and have it ploughed three or four times, a man with a good pair of buffaloes gets through a lot of manure), apply it from 18 inches or even 1 foot from the stem to the utmost spread of the branches and fork it in lightly without lifting the roots or soil.

This can only be done in the hot weather and with well-powdered manure, and there are two dangers to avoid. If the stuff be at all moist an undesirable impetus *may* be given to the bud, while if the forking be done too long before the showers in a dry place damage *may* be done by excessive dryage. Still in this, as in most things, the possession of a little of the faculty of *bandobast* will do great things. I do not like the pit system, though on very steep land, of which I have very little, an alternative is hard to find; if pits must be taken they should be at least 3 feet long 1 foot wide, and on steep land 1 foot deep. Manure should not be flung in and covered over, but carefully mixed with soil at the bottom of the trench and some of that taken out. This is such an expensive operation that most people naturally shrink from the cost. The system of flinging the manure down in the middle of four trees has the merit of cheapness, but I do not know if there are any other recommendations unless one wishes for further exposure to get rid of denitrifying influences, and even then I dare say the pernicious bacilli, if they do exist, find their way into the soil. The system of spreading the manure round the tree or over the ground with more or less care, but not digging it in, is perhaps a better one than the last, but I cannot help thinking that there must be considerable loss. I have done all these things, my application having been guided by circumstances, and while regarding cattle manure with suspicion on account of its costliness, I think that the more costly method which I was first taught is the best. It runs to nearly, if not quite, Rs.100 per acre, with a fairly honest basket to a tree (say $\frac{3}{4}$ bushel), which is an almost prohibitive sum to most, and it does worse, it takes a number of coolies off other works sufficient to cause inconvenience at times, and it necessarily leads to the prolonging of one's own labours, as without this operation imported coolies could probably be paid off a month earlier.

With all this I cannot make up my mind to abandon bulk altogether, but I welcome the hope given us by those I have called the new school, and am only too willing to experiment on their lines. I have received valuable information from one of them, and earnestly hope to receive more from critics of my remarks. No doubt I shall be made to regret having expressed any opinions, however mildly; but we have all heard many tales of communities being benefited by a human sacrifice, and I offer myself as a willing victim. Probably you, Sir High Priest, are beginning to wish that you had exercised a little more discretion in the choice of a subject. I have not finished yet, but there cannot be much more. My ignorance in the matter of cattle manuring may be called only comparative; with regard to artificials and especially chemicals it is absolute.

Jno. G. Hamilton.

Seagully, Mudigere,
5th October, 1898.

[As Mr. Hamilton, though he poses as a very unwilling victim at the outset, ends by asserting himself to be a willing one, we need offer no apologies for having given a turn of the boomerang to his suggestion and sent it back to its originator! It was the least we could do, as a mark of genuine appreciation of that suggestion, to ask Mr. Hamilton to give practical effect to it. If he does not feel all the better for having expressed his thoughts, many of our readers will at least be glad to read his remarks. We are glad to note that he "has not finished yet," but hope that there *will* be "much more."—Ed., *P.O.*]

NOTES.

Ceylon Tea Shipments. The shipments of tea from Ceylon last month are stated by the Colombo Chamber of Commerce at $6\frac{1}{2}$ million pounds. The estimate for November is $6\frac{3}{4}$ to $7\frac{1}{4}$ million pounds.

A Madras Appointment. The *Kew Bulletin* reports that Mr. C. A. Barber, lately Superindent of the Agricultural Department of the Leeward Islands, has been appointed Government botanist for the Madras Presidency in the room of the late Prof. Lawson.

Calcutta Tea Sales. At the sales in Calcutta on 3rd instant about 22,000 packages were sold. There was good competition at firmer rates. Pekoe Souchong kinds were distinctly dearer. Darjeelings were keenly competed for. Sylhet pekoes were in strong demand by Bombay buyers.

The Planters' Association of Ceylon. We have to acknowledge, with thanks, the receipt of a copy of the Proceedings of the Planters' Association of Ceylon for the year ending 17th February, 1898. It is a very bulky volume, and gives an immense amount of information on all manner of subjects connected with the planting interest. As usual, it is well arranged and neatly bound.

The Ceylon Cacao Cryptogamist. It was stated at the Committee meeting of the Haputale Planters' Association, on 29th ultimo, that Mr. Carruthers was unwilling to remain in the Island. It was resolved:—"That the Association support the action of the Parent Association in asking for the establishment of an Agricultural Department to include a qualified Cryptogamist."

The Tea Season up North. From Cachar it is reported that the season seems far from being a prolonged one. Native competition does not appear to be liked. In South Sylhet the outturn is not quite satisfactory, but some gardens have about reached estimates and a few have lopped them. A good many small estates are on the market. Very little tea is now being manufactured in Darjiling, and the season is practically closed.

London Dock Charges. The Coffee and Cocoa Section of the London Chamber of Commerce

has been considering the question of the charges of the London Dock Companies with respect to coffee and cocoa, which, it is alleged, are much higher than those ruling in some Continental and other ports. Representations will shortly be made to the Dock Companies with a view to inducing them to lower their charges, and thereby foster the trade in cocoa and coffee in London.

Effects of Cheap Tea. Mr. George Seton, of share-broking fame, says that he holds an opinion that is confirmed by many of those most closely in touch with distributors. This is, that it is the excessive cheapening of tea to the consumer which has been the great evil in spoiling and (if one may be allowed the expression) prostituting the trade in Great Britain, and that nothing would be better, alike for producers and distributors, than a gradual raising again of the standard of both quality and value.

Colombo Tea Sales. At the public sale of tea at the Chamber of Commerce room, Colombo, on 2nd instant, about 6,857 pkgs.=530,678 lbs. were offered, of which about 5,060 pkgs.=398,693 lbs. were sold. The sale passed with a very firm tone for all common teas. Medium and fine grades did not meet with such keen support. The best teas in the sale were: Queensland, Glasgow and Mocha. Amongst the low grown, some of the best were: Chesterford, Kelani, Talgaswella, Polatagama, and Eila.

Indigo. A Company has been formed in England under the title of the Indigo Defence Association, Limited, with a membership of 1,000, each liable for the sum of £1 in the event of winding up. The object of the Association is to promote and to protect the manufacture of indigo and the rights and interests of indigo planters in India and elsewhere. We mention the fact simply to show that the tea and coffee industries are not alone in their belief that self-defence, in these days of keen competition, must take an active form.

Curious Tea. The British and Colonial Tea Company of London have been distributing a circular in praise of their "Nontanine Tea." It is a bit of a curiosity, to judge from the description given by the Company:—"It is one of the most delicious and harmless teas ever offered to the public. It is a first crop tea of the finest quality; the leaves being picked *whilst the blossom is on the plant*, and it is as free fr tannin as, with our experience, it is possible to secur Evidently it is not only at *school* that sounder instruct is required with regard to tea.

COFFEE SHADE TREE.

Sun-dried Erythrina Lithosperma loppings, &c., contain per ton:—

61·50 lbs. Nitrogen.
57·38 „ Potash.
14·92 „ Lime.
13·68 „ Phosphoric Acid.

Seed cured under Messrs. Sutton and Sons' advice.

Orders should be booked early for the 1898-1899 crop of seed from the parent trees of above analysis at Rs.6 per pound containing about 2,000 seeds. *Germination guaranteed.*

Only thornless variety extant, and is not procurable anywhere save from the

MANAGER, ARIENKOW ESTATE,
Shencottah.

Total Export of Tea from China. Messrs. Siemsseen and Co., in th Market Report, dated Hong-Ko 15th October, 1898, give the lowing figures:—

		SEASON. 1898–99. lbs.		1897–98. lbs.
To England	...	20,497,116	agst.	23,057,372
To the Continent	...	4,998,724	„	7,479,411
To Russia	...	22,035,577	„	24,545,404
To America	...	18,795,485	„	27,810,444
To Australia	...	4,515,185	„	3,513,458
To South Africa	...	1,289,058	„	1,257,944
Total	...	72,131,145	„	84,664,033

The London Tea Market. Telegraphic reports of 2 instant stated that the tone of market was firm. In their weekly telegram to Colom dated 3rd inst., Messrs. Gow, Wilson and Stanton sta that the market generally was unchanged, good liquori Broken Pekoes easier, poor liquoring teas steady. Quo tions—fair liquoring Ceylon Pekoe Souchong 6½*d.*; avera of Ceylon tea sold a Garden account during the week 8 Both these rates are the same as were quoted the previ week. Reuter reported on the same day that common medium Ceylon teas were in good demand; 24,000 packa were sold out of 25,000 offered, and the average was 8 (unchanged). As regards Indian, 50,000 packages w offered, of which 46,000 were sold, the average price bei 8⅜*d.* It is a long time since the average of Indian w quoted below that of Ceylon.

Imports of Artificial Manures into Ceylon. According to the Customs retur the imports of artificial manu into Ceylon in the last six years a as follows, the quantities imported being given in tons:—

	1891 Tons	1892 Tons	1893 Tons	1895 Tons	1896 Tons	1897 Tons
Manure, bone ...	4,287	4,046	3,734	4,343	4,904	5,075
Saltpetre, refuse ...	15	...	...	99	83	191
Castor-seed poonac ...	1,751	1,006	15,433	5,374	5,553	5,440
Fish manure ...	...	...	...	1,070	897	32
Manure chemical ...	...	...	...	...	136	...
Sulphate of ammonia..	26	...	...	...	...	125
Guano ...	...	7	5	...	...	4
Total ...	6,079	5,059	19,172	10,886	11,573	10,867

The figures do not point to any great increase in dema of late, but perhaps this is due more to general har up-ishness than to general disbelief in artificial manures.

Coffee Planting in New Guinea. It is reported that "Coffee pla ing is at last being undertaken earnest in New Guinea, as a plantati is being formed on the Astrolobe Mountains about 20 mi from Port Moresby, at an altitude of 2,500 feet, where it hoped to put about 30 acres under trees in February. T Hon. D. Ballantine is also starting a plantation a lit farther inland at Sogeri, and others are talking of taki up land for the same purpose. The coffee and tea alrea planted out are said to be looking splendid, as also t young plants in the nurseries. Liberian and Arabi

coffee has already been planted in several districts, and is everywhere doing well, but so far the Arabian variety has been neglected. On the Astrolobe it is intended to plant the latter kind only." "Any kind of soil or plant" and the pick of the country at 2/6*d.* per acre are special inducements no doubt, and it is even stated that the Government is contemplating the giving of blocks of land free of charge to *bonâ fide* settlers.

Tea in the Colonies. In their monthly report, dated October, 1898, Messrs. Alfred Harvey and Co., of Melbourne, give the following interesting statistics :—

TOTAL SHIPMENTS TO COLONIES.

Season.	Foochow. lbs.	H. Kong. lbs.	Colombo. lbs.	Calcutta. lbs.	Total. lbs.
1897-98	4,593,000	1,500,000	13,670,105	6,632,460	26,395,565
1896-97	6,200,000	1,500,000	11,793,882	6,197,450	25,691,332
1895-96	11,262,500	1,500,000	10,306,506	6,620,126	29,689,132

ARRIVALS AT MELBOURNE (COMPILED FROM CUSTOMS RETURNS).

	Foo-chow. lbs.	Hong Kong. lbs.	Colom-bo. lbs.	Cal-cutta. lbs.	Colo-nies. lbs.	Other Ports. lbs.	Total. lbs.
97-98	2,194,209	780,048	4,604,443	2,250,576	817,327	44,369	10,690,973
96-97	3,834,360	613,449	3,701,970	2,314,899	879,484	2,202	11,346,384
95-96	6,086,349	561,955	2,726,665	2,906,202	842,712	88,565	13,212,448

The advance of Ceylon is very marked, and equally so is the inactivity of Southern India—though probably Travancore teas are to some small extent included as Ceylon. The freight difficulty is in the way of progress for Southern India, and will continue to be so until planters bestir themselves to secure better and cheaper facilities than are now afforded them.

Analyses of Tea. The twenty-seventh annual report of the local Government Board shows that the report of the Commissioners of Customs is to the effect that their analyst under Section 30 of the Sale of Food and Drugs Act had analysed during the year 701 samples of imported teas before they were taken out of bond, as follows :—57 samples green tea faced, 9 green tea unfaced, 37 green tea caper, 303 black tea Congou, 259 black tea dust, 36 black tea siftings. Of this total 629 samples were, after analysis, considered satisfactory, and the importations represented by them were accordingly delivered on the certificates of the analyst. The remaining 72 samples represented teas of a doubtful character, the results of analysis of which were reported to the Board for their decision, with the following results :—71 samples, representing 1,085 packages, were refused admission to home consumption and restricted to exportation as being exhausted within the meaning of the Act, or as being mixed with other substances. One sample, representing 64 packages, was found to be unfit for human food and destroyed. Of the 403 samples of tea examined by public analysis in 1897 only one was found to be adulterated. As to this sample, which contained small stones and sand, the analyst for Derbyshire reports that at one time this method of increasing the weight of tea was not uncommon, but that since the Custom House authorities have undertaken the examination of tea when imported, it is extremely rare to meet with an adulterated sample.

LETTERS TO THE EDITOR.

POTATOES.

SIR,—Can you, or any of your readers, tell me how long a crop of potatoes should remain in the ground?

I have some that have just blossomed and are in splendid foliage. What I want to know is whether there is any indication, such as withering of leaf, etc., when the tubers are ready to be taken up? Also, what period generally elapses between sowing and reaping, and what is considered a fair yield per pound on the quantity put down?

BUSHMAN.

CITRIODORA.

SIR,—I should be glad if you, or any of your readers, could give me information about the above variety of gum.

It is, like all the eucalyptus family, a native of Australia, and is, I believe, being experimented with in this country in the interests of a projected secret industry. It is said to make a good shade tree, and it is in this particular that I seek information. Gums are not of a spreading habit, and give little shade for their size, but this variety appears to be little known, and may be of different conformation, so I should be glad to learn more of its nature and habits.

BUSHMAN.

FRUIT PESTS.

SIR,—My oranges, cucumbers, peaches and apples are attacked by maggots. I cannot say what the name of the fly is ; in fact there are two flies, one has diaphanous wings, and is very destructive to cucumbers and oranges, the other is a red fly which attacks peaches. I will look out for samples of each, and send them to you.

H. R. MORGAN.

OOTACAMUND,
5th November, 1898.

GENERAL ARTICLES.

TEA DRINKING IN LONDON.

"MIRANDA," in the *Lady's Pictorial* of the 15th October, has the following paragraph :—

There was a time when man—superior man—used to find the feminine love of tea a subject for mild jokelets. When he did not laugh at us for our predilection for the "cheering cup," he broke out in fierce tirades against it; and now he drinks it quite as freely as we do. Everybody is a tea-drinker, and at men's clubs it has become a favourite beverage, so that the hearts of the teetotallers should be rejoiced. On the contrary, however, dismay has spread in temperance circles at the announcement that tea-drinking is fast developing into a national vice. Women must come to the rescue and the kettle must advance to the drawing-room. Every hostess must make her own tea and see that it is brewed afresh for each batch of callers. With so eminent a tea-dealer as Sir John Voce Moore in the civic chair of the metropolis, and these words of warning in our ears, tea-making ought to become quite fashionable this winter. A woman always looks well when she is so engaged, and this is no small consideration.

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LATEST TELEGRAPHIC QUOTATIONS.

	LONDON, *9th Nov.* 1898.
Bar Silver	27⅛
Bank of England Rate	4 %
Coffee—quiet.	
Nilgiri, average (B) size	65
Middling Ceylon	103
	NEW YORK, *9th Nov.*
Coffee—Fair Rio	6
Futures—February	5.22
Silver—Commercial Bars	60⅝

COFFEE CROPS IN MYSORE.

THE *Ceylon Observer*, in republishing Mr. Graham Anderson's letter to us on this subject (*vide* issue of 22nd ultimo), remarked:—

The name of Mr. Graham Anderson has long been familiar to us as a Mysore planter of prolonged experience and a well-informed writer on planting topics. In answer to our enquiry as to the coffee crops of recent years as compared with ten years previously, he writes a long and interesting letter which we reproduce on our second page, but without exactly answering our question save in a general way. However, it is quite clear that Mysore coffee has never suffered from the leaf fungus to the degree that coffee in Ceylon did. But strangely enough, what we have always heard of as the chief cause of this comparative immunity, namely, shade-trees for the coffee, rich soil and a dry climate, are scarcely alluded to. Mr. Graham Anderson makes much of abnormal seasons; and, alas! this only serves to remind us of the voluminous writings on Tytler's dry and wet cycle, favourable and unfavourable seasons which began as coffee went back in Ceylon. Between 1840 and 1875 there were many "glorious seasons" because coffee was vigorous and capable of yielding good crops. After 1875 somehow, the seasons got out of joint all over the country, but it soon became evident the coffee was "out of joint" too. However, Mr. Anderson mentions one very significant fact, namely, that since certain Mysore estates *were replanted* with Nalknaad coffee, they have given better crops than ever before. We have no such experience in Ceylon. Nalknaad coffee seed was experimented with in one or two districts here, but without permanent success. A few catch crops were got, and then coffee gave way to cacao usually.

THE BRITISH TEA DUTY.

THE London correspondent of the *Times of Ceylon* writes under date 14th October, 1898:—

A meeting of the Tea and Produce Committee is to be held on Wednesday next. The business of the meeting is the nomination of three members to confer with three representatives of the Indian Tea Association (London), as to the proposed reduction or abolition of the home-duty on tea. It is on the initiative of the Indian people that this step is being taken, for here, we Ceylon men, are still awaiting news from the front, the decision of the Planters' Association in Ceylon. The opposition which, I understand, is preventing a settlement, exists also in London. There are in the ranks of the London tea-brokers—and well-known members also—some who look with very considerable doubt upon the policy of letting in the "rubbish" on still easier terms. But surely, all the teaching of the past goes to prove that this is a fallacy. The scare when the duty was last reduced is repeating itself. What is morally certain is this; increase the consumption, and the price will go up, rather than down, supplies being on the present basis, and owners of estates producing fine tea need still less be afraid of the 'bogey.' Any dealer you speak to will tell you of the difficulty he has in meeting his requirements in the matter of fine tea. To prove this, I need go no further than refer to the report of Messrs. Peek, Brothers and Winch, and the sentence I drew attention to in my letter of 16th September:—"We have again to report an excessive supply of common, and a great scarcity of fine tea from India and Ceylon." If your planters cannot fill the requirements of London dealers for fine tea, and continue to produce an excessive supply of common, they will assuredly best make an impression on this bulk by putting it more within the reach of working classes—by supporting solidly a reduction or abolition the British tea duty. The position of coffee to-day is worth consideration. Whilst the commoner sorts are far in excess of requirem the fine sorts remain unaffected; therefore, I repeat, producers of teas have nothing to fear.

INSECT PESTS IN HAWAII AND ELSEWHERE.

MR. E. E. GREEN writes that, since his visit to Ceylon, Mr. A Koebele has been busily employed in importing beneficial in from all parts of the world for the benefit of the Hawaiin plan He has even gone further, and pressed into his service bats toads, which were previously unknown in the islands. The l seem to have been successfully established, but the imported are said to have disappeared. Mr. Green proceeds:—I wonder Mr. Koebele has not tried moles. I have often thought that t little animals would be of great use in reducing the numbe underground insects, such as cockchafer grubs, wireworms, worms, and even white-ants. Their introduction would be unatte by any danger. Even in England the only harm they can be to do is that they spoil the neat appearance of the grass swar the numerous little hillocks of earth thrown up during their terranean wanderings in search of the grubs that feed upon the g roots. It is said that the wholesale destruction of moles in Eng has led to a serious increase in damage from underground la Mr. Koebele himself quotes an instance of the value of the mole. tells us that a gentleman of Yokohama, "in building a lawn cricket ground, had a brick wall surrounding this to a dept several feet to prevent the moles from injuring the lawn. All well for a few months, at the end of which the grass began to yellow and die off. All efforts with manure and water were use and he continuously found larvæ of Scarabæids (Cockchafers) had come to the surface to die. Nothing could be found to rem the evil until the gentleman was advised to take down the wall give the moles to the larvæ, which was done, and the lawn recovered."

Mr. Koebele may be called the "Apostle of Natural Remedi He altogether refuses to recommend artificial remedies, as b effective only for a short time and too expensive.

In view of the failure that so frequently attends the freezing cess, it would be interesting to learn what plan Mr. Koebele found most successful for the transportation of the numerous signments of lady-birds and other beneficial insects he has b procuring for the last three or four years.

THE FIRST FLUSH.

WHAT is the reason, asks the *Planter*, for the teas manufacture the commencement of each season being so poor in quality? heart of a cultivated tea-bush lies in the stem a foot below an foot above ground; we then have the taproot and other deep r which give the most sap, which sap, however, is very poor. next come to the branch and surface roots: these give the ri sap; both worked together send out to the branch leaves. leaves next do their share of the work by taking nourishment f the atmosphere, and ammonia from the soil through the cells in underpart of the leaf. During the dry months of the year the penetrates the soil, different soils, and makes the surface fee inactive. The deeper the heat gets the more roots get inactive: t get put to sleep, so to speak. The earth on the surface of the so baked and gives out no ammonia; the atmosphere is also d and dry, so the leaves also suffer; they droop and cannot sus themselves, much less help the flushing. Night-dew and sl showers enable them merely to look healthy. As the dry sea advances the bush gets more and more dependent on the tap lower roots, which now have to bear all the strain in supporting tree and give flushes. The sap given is, however, very poor, un the soil is rich at a great depth. The tea manufactured from poor flush is consequently weak in the cup. After the rain set the earth gets softened; the surface roots awaken from t

MILLIE & REDMOND, late P. THOMPSON & CO., *Ootacamund, Engineers and Contractors.*

dormant state and contribute their sap. The atmosphere is again moist, there is more or less electricity, and the earth gives up its ammonia. The leaves are now enabled to fulfil their functions. The total results of all these things working together are good healthy flushes, and consequently good manufactured tea.

Considering these things, do we act wisely in taking off our first flush when we do? Would it not he wisher on our part, especially when we consider the present state of the market, to sacrifice the first flush and let it remain on the bushes so as to give them some stamina. It is a moot question whether we prune our bushes at the right season. If next season orders were issued not to pluck the first flush, it would undoubtedly be a move in the right direction. Very few planters will question this, as the consensus of opinion now is that we start plucking too early, and that it would pay better in the long run to leave the leaf on the bushes.

COFFEE IN THE STRAITS SETTLEMENTS.

An *ex*-Ceylon Planter writes to the *Ceylon Observer*, under date 24th ultimo:—

Coffee beans which went down with the recent slump from $45 to about $16 per picul (133⅓lb.) has recovered slightly and is now in the neighbourhood of $23 for the best quality, and this is a price which would pay 15 to 20 per cent. on capital cost on estates in full bearing, *i.e.*, giving 5 to 6 piculs an acre. But some investors show signs of chucking their interests before giving their places a chance. The large majority, however, are sticking to their guns, and planting Para rubber and cocoanuts, in many cases through the coffee, sufficiently far apart to minimise the effect of the too dense shade. The discovery of tin on their totums has raised the hopes of a good many, and one estate which was once very nearly converted into a Company in Ceylon is said to have struck it pretty rich. The Government at one time were all for putting difficulties in the way of planters mining their land without first surrendering their agricultural titles, but our present Resident took up a strong position and helped us through. It is early to prophesy; but it is nevertheless quite on the cards that a good deal of land originally taken up for coffee may bring the proprietors in a considerable revenue from the tin, which is now quoted at the splendid price of $48 per picul (133⅓lb.) There can be no doubt that the country has a great agricultural future before it; for everything you plant grows luxuriantly, especially in the rich alluvial soil of the coast districts, almost all of which is reclaimed swamp land which ought to be a hotbed of fever and its attendant evils, but is on the contrary extraordinarily healthy, infinitely more so than the interior, where fever and dysentery in some localities, just about break one's heart.

Let us hope that Straits coffee-planters will have better luck with tin than Wynaad had with gold. In a country with "a great agricultural future before it," however, we should scarcely care to speculate much on coffee-planting combined with tin-mining on the same estate. If it is the tin that wins the race, what price that "great agricultural future?"

THE COFFEE PRODUCTION OF INDIA.

It is sincerely to be regretted that those who are responsible for the compilation of official trade statistics should fail to clearly recognise the demand on the part of the mercantile communities of all countries for not only complete but early information. Here, for example, are the official figures for the yield of coffee in India last year just arrived from Simla, as though it were the most inconsequential thing in the world whether they got to London at all. However, now that they have arrived we may endeavour to ascertain what they demonstrate.

The salient fact is that the yield in 1897—24,000,000 lb.—was 7·8 per cent. lower than in 1896, and also lower than that of every other year since 1885, with the solitary exception of 1890. Madras, it is true, registers a slight increase on 1896, but the total yield shows a considerable falling off. Madura, Tinnevelly, South Canara, and Malabar all suffered badly from a shortage of rain and leaf disease, and these are the two factors in the decline. Want of rain operated unfavourably in Mysore; but here something is to be attributed to a reduction in the area planted. The return throws very little light on the reasons which have led to a portion of the land going out of cultivation, but probably the depression in prices may be held mainly accountable for it, although the dying or removal of old plants, owing to their unproductiveness, also doubtless helped. The area under coffee in Madras has contracted greatly in the last two years, but outside of the districts of Malabar and the Nilgiris coffee is not grown to any large extent in the Presidency. The cultivation of the berry in India is, in fact, confined to the districts mentioned and to a limited zone in Mysore and Coorg. At the end of 1897 there were 276,074 acres of land under coffee, all, with the exception of 524 acres, in Southern India. The industry gives employment—taking the 1897 figures as a basis—for nearly 40,000 persons permanently and about 100,000 temporarily. The 1897 average is one employé to every 2·06 acres.

With regard to the matter of imports and exports, the following figures are the average for the five years ended 1897-98:—

Indian Coffee.	lb.	Foreign Coffee.	lb.
Production	...32,748,344	Imports	...1,361,024
Exports	...28,822,954	Re-exports	... 859,062
Left in India	... 3,925,390	Left in India	... 501,962

From these it will be seen that although India grows very much more coffee than she needs for her own use, she nevertheless imports a quantity. Of the coffee consumed in India, foreign coffee represents only about one-eighth the amount of Indian coffee. The figures also show that as much as 88·01 per cent. of the total production goes abroad. The principal consumers of 25,200,986 lb. of Indian coffee exported in 1897-98 were:—

	lb.		lb.
United Kingdom	...12,773,376	Austria-Hungary	...591,360
France	... 8,607,872	Germany	...297,584
Asiatic Turkey and Persia	... 863,856	Ceylon	...293,888
Arabia	... 630,896	Australia	...199,024

The United Kingdom is India's best customer, but France runs her comparatively close. The pronounced addiction of our friends the French to the use of the fragrant berry sufficiently explains this circumstance.

We have already intimated that the price of coffee is depressed. The following table of prices in London in February of each of the last twenty-three years gives point to the observation:—

	Per cwt.		Per cwt.
1876	...100s. to 116s.	1888	... 74s. to 95s.
1877	...107s. „ 122s.	1889	... 87s. „ 110s.
1878	... 96s. „ 122s.	1890	... 97s. „ 110s.
1879	... 91s. „ 112s.	1891	...102s. „ 115s.
1880	... 94s. „ 115s.	1892	...101s. „ 112s.
1881	... 75s. „ 108s.	1893	...105s. „ 118s.
1882	... 62s. „ 105s.	1894	... 94s. „ 109s.
1883	... 60s. „ 106s.	1895	... 96s. „ 112s.
1884	... 68s. „ 103s.	1896	... 95s. „ 110s.
1885	... 54s. „ 95s.	1897	... 98s „ 115s.
1886	... 54s. „ 105s.	1898	... 75s. „ 93s.
1887	... 75s. „ 95s.		

The ten years of depressed prices, 1879 to 1888, greatly discourged planting in India and Ceylon; but the sharp rise which took place in 1889 served to revive the drooping spirits of those engaged in the industry. Speculative corners, troubles in Brazil, and other causes have contributed to keep the level high since that year. In 1896 prices fell again, however, and, after improving again in 1897, fell very considerably lower in consequence, according to the return, "of the enormous quantities of Brazilian coffee which have been thrown on the market." The present position of the Indian planter can therefore hardly be described as comfortable. The best he can hope for is a speedy consumption of the Brazilian product now in stock. —*Financial News.*

JAVA QUININE.

Our contemporary, the *Chemist and Druggist*, deals with Mr. American Consul Everett's recent report in a sarcastic spirit. Though many of its remarks are but a repetition of information given in our columns some time ago, we quote the whole as follows:—

The future of Java cinchona need no longer trouble the producers. U.S. Consul Sidney B. Everett, of Batavia, has taken Java under his wing, and has told his Government how America can buy from Java

and be independent of Europe so far as "raw quinine" is concerned. Mr. F. W. Sijthoff, manager of the Java Quinine-factory, is Mr. Everett's authority for the statement; but if Mr. Everett's other information is derived from the same source, his prophecy must be taken cautiously, as he seems to be labouring under the impression that quinine is stuff worth a few pounds per ounce. "There have (he says) been invoice and shipped to U.S.A. from Java this year 48,300 oz. of sulphate of quinine, valued at $11,395,055," and "more will follow, of course, but not at that price." No American citizen is required to pay a dollar for his matutinal quinine-pill, although the "war has resulted in a rise in quinine quotations." Mr. Everett's figures have got mixed somehow; there are bound to be millions in it before a U.S. Consul dare touch a thing, and a paltry 48,300 oz. of quinine in face of "North America's annual consumption of 10,000,000 oz." was too little a thing to go by itself we fancy, especially as one object of the report seems to be to induce Americans to put their money in Java. We fancy, however, that Mr. Everett cannot be responsible for the $11,395,055. "Now is the time," he says, "to begin a new quinine-enterprise. The stock now laid up will be consumed in two or three years, and the demand will immediately be largely increased." (We may remark, parenthetically, that cinchona-trees are always growing.) He "cannot conceive of a better investment than the planting of cinchona in Java. Concessions of land are not hard to get there, if one is on the spot. The climate in the interior is as perfect as that of the coast cities is bad. The Dutch Government has made a great success of planting, clearing a profit in 1896 of over $38,500 from its estates. The world's output is only 788,771 lb., of which Java produces about three-fourths." The last sentence refers to quinine, not cinchona.

This invitation to American financiers is not altogether unreasonable, for the thing that Java cinchona-planters lack most is the wherewithal to prevent them realising bark as they dry it. They must get money—they must take what buyers give them for the bark. The successful attempt of last year to advance the unit (which increased threefold from January to December) resulted in such accumulation of bark that many have been forced to realise this year, the result being that, so far, a fourth more bark has been offered. This is shown by the following figures, which give the results of the auctions for the eight months of this year:—

Year.	Weight of Bark. Kilos.	Quinine Sulphate in Bark. Kilos.	Average per cent. of Quinine Sulphate.	Quinine Sulphate sold. Kilos.	Quinine Sulphate bought in Kilos.
1898 ...	5,175,316	257,678	4·88 to 5·43	178,539	79,139
1897 ...	4,005,504	221,058	5·26 „ 6·10	186,444	34,614
1896 ...	4,528,277	240,309	5·05 „ 5·83	202,126	38,183
1895 ...	4,636,859	225,367	4·63 „ 5·17	141,314	84,053
1894 ...	3,443,031	161,659	4·61 „ 5·12	125,727	35,932
1893 ...	3,930,594	172,982	4·23 „ 5·02	97,679	75,303

These sales also reveal the fact that this year's quality of bark has sensibly deteriorated—a condition which often accompanies deplantation, or indicates that carelessness on the part of the planters which results from unprofitable enterprise. However that may be, it is regrettable to see any sign of deterioration in a place where it is so easy to keep up the quality. These are considerations of practical utility to the American investor. It is astonishing how the consumption of quinine goes on. The above figures do not, perhaps, convey much, but when we say that at Amsterdam a fortnight since the bark sold represented 35 tons of quinine sulphate, and that one quinine-manufacturer bought two-thirds of it, everyone can grasp how important in volume the quinine-trade has become of recent years. It is also worth noting that although quinine is cheap, and the British Pharmacopœia has de-officialised cinchonidine, the latter alkaloid is growing in demand and is rapidly coming to the price of quinine.

Our chief reason for giving the above in full is that the *Ceylon Observer* has made it the text for a serious exhortation to Ceylon planters to try Cinchona again. This is how the matter is put:—

We would very seriously advise a renewed attempt at cinchona cultivation in Ceylon, especially in the Uva districts where plants did best and lived longest in years gone by. If fresh seed is got from Java or Northern India, there is no reason why both nursery and clearing—judiciously chosen—should not be successful; or it might be enough from the nursery to plant up all the bounda*aides* of roads and drains. A rather satirical, but still instruc*sriticism* of Java quinine and cinchona planting from the *Che*c*nd Druggist* winds up with the pregnant remark that "astonishing how the consumption of quinine goes on," and facts and figures in demonstration.

Moreover, our contemporary dwells on the great and gro demand which has set in for cinchonidine, which is rapidly r to the price of quinine. Now we have learned from Messrs. Bohri that Ceylon cinchona bark—what is left of it—excels in its propo of cinchonidine, and here is a new reason for once again exten the cultivation. We know what a disappointment the plant been to many in the past: but was not that due in many cas the use of local seed and hurried injudicious planting on expos badly-drained clearings. At any rate there is much to encou the planting up of boundaries and roadsides throughout the districts, Udapussellawa, Maturata and some other divisions w the plant did well in bygone times.

And so it always will be! As soon as the news travels round the price of a product is rising, men will set to work to try to share in the good thing, and the inevitable relapse in rates will fo

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INDIAN TEA-GROWING PROSPECTS.

THE results of the 1897-98 season in this industry were uns factory. Working expenses rose owing to the famine, consequently increased cost of feeding the coolies. The qualit the yield was for the most part poor, the prices ruling in the Lo market showed a decline, and the exchange position was unsati tory, and many of the reports of individual companies refer t last cause as seriously affecting profits. The result of all this that dividends declined and the price of shares showed a consider fall. In the table given below it will be seen that even betw January 1898 and the present time there has been a marked de in quotations, though at the former time fears were entertaine to the season's results. Compared with an earlier date the fa price is even more marked.

Four months ago we indicated that prospects were improv and this view is confirmed by the reports coming to hand from principal districts. In Assam both quality and quanity are state be better than last year. In Dooars and Darjeeling the quanti about up to the average, while the quality is stated to show improvement. In Ceylon the quantity may be rather smaller, the quality, according to present indications, will be superior. least favourable accounts are received from Cachar and Sy where there was a drought up to August, so that at the pre time there is a shortage in the crop, and the quality is poor. F in these two districts, however, there is time for recovery if favour conditions prevail during the remainder of the season. It is als be borne in mind that the effects of the famine are over, and extra cost which it involved is not likely to recur this sea Prices are also better, and the development of trade with Austr North America, Russia, and elsewhere goes on satisfactorily. T is, therefore, fair reason to hope that the fears so freely expre some time ago as to production being in excess of consumption not be verified. The position with regard to exchange remain it was; but as there seems now a prospect that the rupee will re stable at about 1*s.* 4*d.*, there will be less uncertainty on this s than has hitherto prevailed.

The present moment, therefore, seems a favourable one considering an investment in this class of security. Below wi found a table setting out some of the principal companies, with districts in which their properties are situated, the dividends pai 1897, prices at various times during the present year, and the y per cent. at the present price on last year's dividend. The list tolerably comprehensive one, framed for giving a general idea o position, and it must not be assumed that all the shares menti are desirable. It may be noted that a good many of the Prefer shares give a yield of 5 per cent., and over, while the Ordi shares, of course more speculative, give in many cases consider higher rates of yield on last dividend result. Many of the r important companies in our list were dealt with in detail in issues of April 30 and May 28 last, to which we would refer readers. Speaking generally, the present time is one for judic buying, after careful consideration of the actual position of partic

concerns and of the prospects of appreciation of the shares; while existing holders of shares in promising companies will do well to retain their interests. Intending investors will find a great deal of useful information in the annual analytical table of the Indian companies issued by Mr. George Seton, of 120, Bishopsgate Street.

Company and Nature of Share. (Shares fully paid unless otherwise stated.)	District.	Dividend 1897.	Price. Jan. 1898	Price. End Apr. 1898	Price. Sept. 27, 1898	Yield % on 1897 Div.
Assam £20 Ord. ...	A	17½	62	60	54	6½
British Indian £5 Ord. ...	A & C	5	4⅜	3¾	2⅞	8⅔
„ „ £5 5% Cum. Pref.	A & C	5	5½	5	5	5
Cachar and Dooars £10 Ord. ...	C & D	7	9¾	10½	8⅞	7⅞
„ „ £10 6% Cum. Pref. ...	C & D	6	12⅝	11½	11½	5¼
Ceylon Tea Plantation £10 Ord.	Cey	15	27½	25½	25	6⅜
„ „ „ £10 7% Cum. Pref. ...	Cey	7	17¼	17	16½	4¼
Chargola £1 Ord. ...	S	5	1	⅝	⅝	8
„ 7% Cum. Pref. ...	S	7	1 5/16	1 5/16	1⅛	6¼
Cons Tea and Lands £10 Ord., £3 pd. ...	S & D	10	¾xd	⅞	2⅝	11½
Cons Tea and Lands £10 5% 1st Pref. ...	S & D	5	11	11	9¾	5
Darjeeling £20 Ord. ...	Dar	5	23½	21	20	5
Dooars £10 Ord. ...	D	12½	21	18	18	7
„ £10 7% Cum. Pref. ...	D	7	17¾	18	16½	4
Doom Dooma £10 Ord. ...	A	12½	24	21	20	6¼
Eastern Prod. and Est. £5 Ord.	Cey	7	6¾	6⅛xd	5⅞	6⅛
Empire of India, £10 Ord. ...	A C & Cey	9	13⅛	11¾	10¼	8¾
„ „ £10 5% Cum. Pref. ...	A D & Cey	5	11¼	10¾	11	4½
Indian of Cachar £10 Ord. ...	C	2	5½	3½	3	6½
Jhanzie £5 Ord. ...	A	3	8⅛	7¾	6½	6
Jokai (Assam) £10 Ord. ...	A	8	18⅛	17½	14½	5⅝
„ „ £10 6% Cum. Pref. ...	A	6	15	14¾	14¾	4¼
Jorehaut £20 Ord. ...	A	13	57½	58½	47	5⅝
Lebong £10 Ord., £8 pd. ...	Dar	12½	17½	16½	15	6¾
Lungla (Syl.) £10 Ord. ...	S	3	10	8½	5	6
„ „ £10 6% Cum. Pref.	S	6	12¼	11	9	7
Singlo £10 Ord. ...	A & D	1	9½xd	8¼	7	1½
„ £10 6½% Pref. ...	A & D	6½	12½	12	11¾	5⅝

Abbreviations.—A, Assam; C, Cachar; Cey, Ceylon; D, Dooars; Dar, Darjeeling; S, Sylhet.
—*Statist.*

PRODUCE AND PLANTING.

TEA PROBLEMS. While all those who are interested in the tea industry are endeavouring to discover the cause of the present depression, the problem has been settled for them. Planters, as a rule, we know are of opinion that dear silver has a great deal to do with their troubles, and this opinion finds support in London where members of the tea community meet. It is admitted readily enough that cheap silver stimulated production, and that too much tea was in consequence rushed upon the market, but few tea proprietors would attribute the present state of things entirely to over-production. The Calcutta *Englishman* does not hesitate to do so, however. In one of its articles on the subject, after giving an array of figures in support of its contention, it says: "A careful examination of these figures shows to any student of the Currency Question that the fall in the price of tea has unquestionably throughout been entirely due to excessive production," and that this cause has had the same effect since the mints were closed as before, and that the reduced China export has played no part in the fall." There is no compromise here. Over-production and this alone has caused all the trouble, and dear silver is merely an incident of the position. The view taken by the *Englishman* is built upon facts and figures, but theories based even upon this apparently solid foundation have sometimes gone wrong. No one, so far as we are aware, wishes to minimise the evil of over-production, but it is possible to make a fetish of figures. As a writer in *Capital* points out: "The planters must know where the exchange shoe pinches them, and as tea is practically all export, and foreign markets other than the existing ones are still to be captured, surely it is easy enough to understand that planters should chafe a little under this 'talk of over-production,' when they know that an artificially raised standard allows them little chance of meeting outside competitors on anything like equal terms."

JAVA COFFEE PLANTING INTEREST. From a circular issued by the Netherlands India Agricultural Company to the 6¼ per cent. bond-holders, it would appear that the Dutch India coffee growing industry is not so prosperous as might be desired. The directors say that the April interest could not be paid to the bond-holders referred to owing to the necessity of keeping the available cash to maintain the good condition of the undertakings and to pay interest and redemption of the mortgage debt. If the cultivation is not satisfactorily cared for, the value would rapidly decrease, and the estates might be ruined. A reasonable bid in that case could scarcely be expected. Provisionally there is no prospect of a reinforcement of means. The 1898 coffee crop has not realised much, and it has now been proved that even the most moderate estimates have not by a long way been equalled. As regards the 1899 crop no reliable estimate can be given as yet. On September 4 a wire was received that the crop was estimated at 4,500 piculs, but the result of the months September and October must be known before anything definite can be said.

THE INDIAN CURRENCY COMMITTEE. The feeling in Calcutta appears to be against any speedy issue of a final report and recommendations by the Committee on Indian Currency, which is about to resume its inquiries in London. According to the Calcutta correspondent of the Allahabad *Pioneer*, it is felt perhaps even more since the publication of the first part of the "Minutes of Evidence" than before that the whole question is so difficult and intricate that any premature action taken which did not prove successful might be fraught with the gravest danger not only to commerce but to the State.

THOSE DOCK CHARGES. The Coffee and Cocoa Section of the London Chamber of Commerce has been considering the question of the charges of the London Dock Companies with respect to coffee and cocoa, which, it is alleged, are much higher than those ruling in some Continental and other ports. Representations will shortly be made to the Dock Companies with a view to inducing them to lower their charges, and thereby foster the trade in cocoa and coffee in London.

THE FLORIDA BEAN. Some valuable information is given in the *Kew Bulletin* about a leguminous plant known as the Florida bean, which has been prominently recommended in American journals as a forage plant, and as admirably adapted for green crop manuring. Recently the beans have been offered for sale in this country. The *Kew Bulletin* places on record what is known of the plant and its capabilities. As to its identity, it was from the first conjectured that the seeds belonged to a plant very near the common purple-flowered Cowhage or Cow-itch plant of the tropics "Mucuna pruriens." The difficulty, in the absence of adequate specimens, in identifying it with this was the fact that in the Cow-itch plant the pods are densely covered with stinging hairs of a brownish colour. A plant so formidably armed, it was thought, could not safely be recommended for general cultivation. In these circumstances we are glad to find from the *Queensland Agricultural Journal* that the plant has flowered and fruited in that colony, and that Mr. F. M. Bailey, the Colonial Botanist, has identified it as Mucuna pruriens, var. utilis. In this variety of the Cow-itch plant the pods are apparently devoid of stinging hairs. What may also prove to be the same plant, with jet black seeds, is cultivated as a rotation crop on sugar estates in Mauritius, under the name of "Pois Mascate." The accounts given by interested parties in America respecting the agricultural value of the Florida velvet bean must be received with caution. It is undoubtedly a rapid grower and affords a large yield of nutritious forage. It bears an abundant crop of seed and is therefore readily propagated. It may also, in common with many other leguminous plants, possess the power of obtaining its nitrogen from the atmosphere, and thus be admirably adapted for green crop manuring. How far it may be found superior in these respects to other plants it is impossible to say. As it is now

being carefully tested in various parts of the tropics, it would be well to await reports, which will, no doubt, be shortly issued on the subject. Meanwhile it may be useful to mention some of the more prominent leguminous plants that have long been used in tropical countries, both eastern and western, as rotation crops for fodder and green manuring: (1) Vigna Cataing, the Chowlee of India, the Tow Cok of China and the Cow pea of the West Indies; of this there are several varieties with black and clay-coloured seeds; (2) Cajanus indicus, the pigeon pea (the small form is known as the No-eye pea and the large as Congo pea); this is universally grown in St. Kitts and elsewhere in the West Indies as a "green dressing" on sugar estates; (3) Phaseolus lunatus, the sugar or Lima bean known in Mauritius as "Pois d'achéry;" "it remains on the land for three years and produces large crops of fodder." The ripe beans are, however, regarded as poisonous; (4) Dolichos lablab, the Madagascar or Lablab bean, this is known in Mauritius as the "Antaque"; (5) Dolichos purpureus, probably a variety of the latter known in Queensland as the Poor Man's bean; (6) Phaseolus Mungo, the green gram of India, known in Barbados as "Woolly Pyroe." This is planted "after the canes are reaped and afterwards turned in as a green dressing."—*H. & C. Mail.*

HOW TO MAKE TEA PAY.

"SIROCCO" has now divested himself of his *nom-de-plume*, and as plain "A. Cooke" has addressed the *Planter* on the above subject. First he gives his own experience, thus:—

The district is Chota Nagpur, which has been during its whole existence as a tea district at the very bottom of the list, both in area of tea and average prices.

The average rainfall is 56 inches, and every alternate year since 1890 there has been a drought. By drought I mean less than two inches of rain in eight months (from end September to end May). The bushes begin to flush in March, and if rain comes they continue to yield good flushes till the end of April. May is invariably a hot dry month, and the bushes dry up and take a rest until the rains come. This is the period in which we prune. As it would be bad for quantity if all the bushes were pruned, we prune only half the garden and let the other half remain unpruned.

I mention all this to show how much more favourable for tea all the other Indian districts must be. And I argued from this that close plucking must be less harmful to tea bushes in other districts. This encouraged me to write to the papers and see whether the idea would do any good. I have thought much about it, and my last idea is that perhaps the double rest, *i.e.*, in the cold weather, and again in May, may possibly make our bushes more hardy, and able to stand hard plucking. Also the fact that we prune only once in two years may give the bushes stronger wood.

Comparing our treatment of the bush with that of Assam, &c., we take off in leaf, and prunings in two years, about the same weight as the other districts take off in one year.

All this may help to prove that close plucking may pay here, and yet be fatal in other districts. However, other districts may find it profitable to abandon their fixed "dasturs" or prejudices, and adopt part of our system. I do not think that a poor soil garden will be able to stand the strain of close plucking and annual pruning, but I think that it might be made to do it by liberal manuring; or by reducing the pruning it may be able to give better results than it does under the old and prejudiced systems which have been proved unsatisfactory.

I have not the slightest wish that any one should adopt my ideas; I offer my experience, and hope that others will do as much to help those whom we know to be in trouble,—that is to say the managers of gardens which do not pay. I have been in Cachar, Sylhet, Assam, Chota Nagpur (in the order given); eight years here and the rest in the plains. Last year I went to the Kangra Valley, and I found still another system of treatment which would absolutely horrify any Assam planter. Firstly, the bushes are heavily pruned at long intervals (from five to ten years) leaving nothing but old "half inch" wood. This pruning is done in May-June before the rains begin. A good growth is left, *i.e.*, three or four leaves, after that close plucking is continued to the end of the year (end of October). In January the new growth is pruned; one leaf is left the first picking, and after that the shoots are close plucked to the end of the year. And so on, each January the three or four inches of growth is pruned off. Some gardens do not even leave one leaf to start with, but pluck close through. I was in the Kangra Valley only two days, so I leave a fuller description of systems to some Kangra planter. I have with me an average branch (off a good garden) whic been pruned off in June, 1897, after five years' growth, and the growth in that time was well under six inches. The neare proach to a simile which I can give is that it looks like a bit tak the top of a furge bush. The branch is one-half inch diar There are five branches on it, and I counted that 53 shoots had plucked off it in 1897 from January to June. I was shown on of tea which had not been hard pruned for 12 years, and close pl all the time. It was a show plot. And thus, with my experie Chota Nagpur and my glimpse of Kangra I thought tha systems might be of value to the plains gardens, especially to which do not pay under present conditions of prices, labour su &c. I advance it as an axiom that only fine leaf tea will pay I offer my experience of the methods by which more fine lea be obtained.

I should imagine that the powers of a tea bush depend on—

1. The quality of the soil, including cultivation.
2. The amount taken off the bush in leaf and wood.
3. The annual rainfall.
4. The periods of rest given to the bush.

Roughly, I would tabulate these as follows:—

Dooars ... } Assam ... }	2	5	2½	1
Cachar ... } Sylhet, &c. ... }	1¾	4	2½	1
Kangra ...	1½	1	1½	1½
Chota Nagpur	1	2	1	2

All these varying conditions may prove to be the reason why district has its own "dasturs" or prejudices. But even so quite possible that each district may take lessons from the ot because the conditions of tea selling have changed. Formerly prime object was to get the greatest *quantity* of leaf. Now ou object must be to get the greatest yield of absolutely *fine* leaf.

To revert to the above table of conditions Col. 2. The an taken off the bushes.

Assam takes 5 mds. tea and 20 inches of prunings each Kangra takes 4 mds. tea and 4 inches of prunings each year; Nagpur takes 4 mds. tea and 15 inches of prunings in *two* Assam and other planters will see how much more they take o bush than we do in Chota Nagpur, and if they wish to do b than at present, I would tell them to take more leaf and less p ings off their bushes. That is to say, not to allow the bush to too much, and to lessen the strain by giving up one pruning. system has also another good feature. The unpruned bushes lots of leaf at the beginning of the year, and if only half the ga is pruned, it will be found that the yield is more evenly distrib over the eight months from 1st February to end of October, and the fine leaf obviates all the difficulties of manufacture.

The chief reason why coarse plucking makes bad tea is tha fine leaf goes bad before the bigger leaves are ready to be made tea, especially in wet weather, or with leaf that has to be artific withered. One can easily imagine the harm done to coarse or dium leaf, of which the fine part is injured beyond repair. C and fine leaf plucked separately would give good results, but b results would be obtained by taking only fine leaf. If the ga cannot give enough fine leaf to occupy the labour, then part o labour and consequent supervision, housing, &c., must be give or the yield must be increased by manuring. The main poi this discussion is this: With the present market is it better to p round in four days, or in ten days, or any intermediate interval give my decision that four days on the best estates with the big labour force is the best; and for average estates with average la five days is the best interval. If you go beyond five days the l overgrown. If you cannot get all the leaf off in five days, it is b to leave a portion of the leaf to get overgrown than to have all leaf overgrown.

A GLUT OF COFFEE.

IT was generally supposed ten years ago that the uncondit manumission of slave labourers in the Republic of the United S of Brazil would inflict a crushing blow on the local coffee ind

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ESTATE TOOLS—	Rs.	A.	P.
Round Eye Felling Axes (steel), 4 lbs. weight per doz. ...	20	4	0
Do. do. do. 2½ „ „ „ ...	15	0	0
Pick Axes, 6½ lbs. (well steeled) ... ... „ ...	16	8	0
Bill Hooks, (Barcutties) 12″ blade, bright steel „ ...	18	0	0
Do. Kentish, with back, steel, 2¼ lbs. wt. „ ...	16	0	0
Bushel Measures (Galvanized), Imperial Stnd. ...each ...	15	0	0
Watering Cans, (Galvanized) "Nonsuch," 2½ gals. each...	4	8	0
Do. do. do. 2 „ ...	4	0	0
Steel Digging Forks. *Steel strapped all along handle.* 4 & 3 pronged per doz. Rs.39-0-0 &	33	0	0
Grass Knives, socket handle, steel ... per doz. ...	12	12	0
Hammers, 6, 7, & 8 lbs. ... ... per lb. ...	0	6	0
Handles, Digging Fork ... ... each ...	0	14	0
Lining Ropes, Tarred Russian Hemp { abt. 600 feet ... „ ...	17	0	0
„ 300 „ ... „ ...	8	8	0
Mamooties, Steel 10″x 8″ & 9″x 7″ abt. 4 lbs. wt. per doz. ...	12	12	0
Do. Iron 10½ x 8½ & 9½ x 8 abt. 3¾ lbs. wt. „ ...	7	8	0
Quintanies, Steel 15″ × 6,″ 5½ lbs. weight ... „ ...	18	0	0
Do. 9½″ x 5,″ 3¼ „ „ ... „ ...	14	4	0
Manure Pans, (Galvd.) 8″ deep x 18″ top x 10″ bottom „ ...	23	4	0
Pitting Bars (Alavangoes), well-steeled points,			
3″ spade end, 45″ long, 9 lbs. weight... ... „ ...	16	8	0
3″ do. 36″ do. 6½ do. ... ... „ ...	12	12	0
Pruning Knives, English make, best steel, 4″ blade „ ...	9	0	0
Do. Saws, do. do. 14″ „ ...	18	0	0
Seamless Bags (for coffee transport to coast) 42″ x 20″ „ ...	9	12	0
Shovels, round nose, T handle ... ... „ ...	12	12	0
Tea Transplanting Spades, steel, sharp edges... each ...	2	8	0
Tea Transplanters.—Made to Planters' Samples.			
TEA PACKING REQUISITES, ETC.—*(For Nails see opposite.)*			
HESTS Full 24 x 19 x 19 (outside) ½ in. planks each...	1	1	0
Half 16 x 16 x 16 („) do „ ...	0	13	0
Quarter 14 x 12 x 10 („) ⅜ do „ ...	0	9	3
Deld. Metapol., Palghat, Calicut. Any dimensions at proportionate prices.			
LEAD—BEST INCORRODIBLE. 4½ oz. Per case of 2 cwts :—			
127 sheets 37″ x 22″ ... ... per case of 2 cwt.	32	0	0
240 „ 25″ x 19″ or 93 sheets 65″ x 19″ „ ...	32	0	0
586 „ 14″ x 14″ ... ... „ ...	30	0	0
50 „ 84″ x 22″ for sides } 100 „ 21″ x 16″ „ tops and bottoms } „ ...	30	0	0
Hoops, Steel ½″ (abt. 3,000 feet to the cwt.) ... per cwt. ...	15	0	0
Solder (Sticks) per case of 1 cwt. Rs. 50, or per lb. ...	0	8	0
Soldering Fluid ... ... per bottle ...	2	0	0
Do. Irons ... ... each ...	2	0	0
Stencil Ink black, in round tins ... ... „ ...	1	0	0
Do. Brushes ... ... „ ...	0	12	0
Tea tasting Pots and Cups ... ... per doz. ...	10	8	0
Tea Sieves, brass No. 6, 8, 9, 10, 12 mesh each ...	6	0	0
Do. do. bottoms do. „ ...	3	8	0

	Rs.	A.	P.
WINDOW GLASS—per case of 100 sq. ft. (all sound) ...	15	0	0
12×10 (120 panes), 16×14 (64), 18×14 (57), 22×18 (36), 24×20 (30), 28×24 (21), 36×24 (17) and 36×30 (13).			
COFFEE PULPERS—*To order only. One month required for delivery.* Agents for:—MESSRS. WALKER SONS & Co., LD.			
COIR MATTING—Per rolls of 60 feet long x 3 feet wide :—			
* Machine-made Yarn :—Superior Rs.15 ; Fine	12	8	0
* Ordinary Twill Bungalow	7	0	0
No. 1 Estate, Double (for coffee drying, etc.)	2	8	0
„ 2 „ „ (do.)	2	4	0
Shade (for nurseries, ferneries, &c.)	2	0	0
* *Coloured stripes to order. Samples on application.*			
ASPHALTE—			
In barrels of 6¼ to 8½ cwts. gross (tare 56lbs.) per cwt. net...	4	0	0
PORTLAND CEMENT—John Bazely White and Bros.			
"Whites" Best ℔ barrel of abt. 375 lbs. net ...	11	12	0
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Best ℔ barrel of abt. 4 cwts. gross (net about 3¼ cwts.)...	20	0	0
GALVANIZED IRON—			
Continuous Iron. For roofing, etc.			
In rolls of 100 ft. x 2 ft. 28 G. (per ft., 7 as.) per roll ...	35	0	0
Nails 1 in. flat headed for fixing the above per 1,000 Nails...	0	5	0
Corrugated Iron (English), 24 G. 2 ft. wide Lengths in feet 5, 6, 7, 8, 9, 10 } per cwt....	10	0	0
Sheets to the cwt. (about) 8·25, 6·95, 5·85, 5·10, 4·55, 4·10			
Selected sheets Rs.1/7, 1/10, 1/15, 2/4, 2/7, 2/12 each.			
Iron Ridging, 6 ft. x 6 inch lap. ... ... per length...	1	8	0
Bolts and Nuts, ¼″ x ¾″ ... ... per gross ...	1	14	0
Rivets ... ... „ ...	0	12	6
Washers, Iron ... ... „ ...	0	10	0
Do. Lead ... ... „ ...	1	2	0
Screws, 2½ in. ... ... „ ...	2	4	0
Lead headed nails, 2½ in. ... ... „ ...	2	12	0

NAILS—Wire, French.

℔ 1 cwt. keg	1″	1½″	2″	2½″	3″	4″
Rs.	13/12	11/8	11/	10/8	10/	9/8
℔ pound annas	2¾	2½	2¼	2¼	2	1¾
Nails ℔ lb. (*abt.*)	600	250	150	100	50	30

Triangular Barbed Wire Nails.

℔ 1 cwt. keg	1″	1½″	2″	3″	4″
Rs.	11/4	9/8	8/12	8/0	7/8

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from which it would be slow to recover; and it was naturally concluded that as the "visible supply" of coffee would fall off greatly, the price of coffee all the world over would advance to an unprecedented level, to the great advantage of planters in India, Ceylon, and elsewhere. And for a time these anticipations were verified. The want of labour on the coffee estates in Brazil was serious; the quantity of coffee that was placed on the market fell off greatly; and prices rose by leaps and bounds. From 1879 to 1888 prices had been much depressed, and what with the ravages of the borer and leaf disease, many planters in India and Ceylon grew weary of the hopeless struggle against misfortune, and either retired altogether from the scene, or uprooted their coffee bushes and placed their land under tea. But in 1889 prices began to mend, and in 1891, 1892, and 1893 they ranged at about 40 per cent. higher than the average between 1882 and 1886, and 25 per cent. higher than the average between 1887 and 1889. This upward movement accounts to a great extent for the recovery of the productive energy of Brazil being more rapid than was expected. The planters, feeling that they could place no reliance on free negro labour, offered the requisite inducement to immigrants from congested labour centres in Italy, and thus rapidly substituted efficient white labour for the unsatisfactory labour of emancipated slaves. With the improvement in the character aud capabilities of the labour employed there was an improvement also in methods of cultivation, and estates became more fruitful. High prices in Europe stimulated the extension of planting, large estates became larger, and new estates were opened out on land previously employed in the raising of maize, beans, cassava-root, and other food staples.

The effect on the shipments of coffee soon became manifest, and in the last three years it has been startling. According to Messrs. G. Duuring and Zoons, who are great authorities on the subject, the arrivals of coffee from Brazil in Europe and the United States, the deliveries, stocks, and supply were as follows in the first nine months of the last four years :—

	1895.	1896.	1897.	1898.
	tons.	tons.	tons.	tons.
Arrivals—Europe	314,420	289,210	369,656	406,630
U. S.	206,585	183,702	242,938	271,173
Deliveries—Europe	294,920	306,860	333,100	371,460
Stocks—Europe 1st Oct.	88,650	32,950	135,300	205,050
U. S. „ „	29,647	19,411	42,058	63,180
World's visible supply 1st Oct. ...	194,440	219,300	354,270	402,800

Another authority states that the receipts of coffee in the United States and Europe from Santos and Rio in the twelve months ending June, 1898, were 10,444,000 bags, as compared with 8,655,000 bags in the corresponding period of 1896-97 and 6,480,000 bags in the same period of 1895-96. This shows an increase of no less than 4 million bags, or about 62 per cent., in the short period of three years. And it is now anticipated that the supply in 1898-99 will be much in excess of that in 1897-98. Already the warehouses in London, Hamburg, Havre, and other great centres of the trade are full to overflowing with Brazilian coffee, so much so that last month the London Chamber of Commerce was negotiating with the Customs authorities for the provision of more accommodation. The consumption of coffee has not by any means progressed in proportion to the increase of the supply. Middlemen continue to hamper the trade by weighting the staple with their excessive profits, and retail dealers continue to ask 1*s.* 6*d.* to 1*s.* 10*d.* per pound for coffee that is intrinsically worth, perhaps, if the retail price were properly affected by the wholesale rate, barely a shilling. What, then, is to become of the enormous accumulation of stocks in both the United States and in Europe, or what is to become of market prices for an article that is being obviously supplied in excess of the world's requirements?

It is difficult to obtain official information about the extent of coffee planting in Brazil, and British Consuls and Vice-Consuls need stirring up; but some idea may be formed of the magnitude of the enterprise when we mention that the largest coffee estate in the country was sold about eighteen months ago to an English syndicate by the Companhia Agricola Fazenda Dumont for the sum of £1,200,000. The property extends to 110,000 acres, of which 13,000 acres are already planted, and 20,000 acres more are still available for planting with coffee. The rest of the land is suitable for the cultivation of maize, tobacco, sugar, &c. There are 6,500 labourers, almost all of whom are immigrants from Italy. They are formed into twenty-five "colonies", each containing twenty-five houses. They draw in wages $200,000 a year. There is a small number of negroes who once were a part of the slave contingent. The number of coffee trees in bearing advanced from 1,300,000 in 1 2,476,000 in 1896; the yield increased nearly threefold, a profit rose from $269,000 to $711,000. The total number of trees of various ages growing on the estate is 4½ millions next largest estate in Brazil has an area of 9,785 acres, has 1,8 coffee trees in bearing, and gives employment to 1,500 lab domiciled in nine "colonies." There are said to be several plantations on each of which more than a million coffee tr bearing are to be found.

With regard to India it appears from the memorandum drawn up by the Director-General of Statistics at Simla that t of land under coffee was 276,074 acres in 1897 as compare 289,266 acres in 1896 and 237,494 acres in 1885. There are acres under coffee in Madras, 125,876 acres in Mysore, 86,15 in Coorg, and 7,624 acres in Travancore and Cochin. There contraction of area in Madras of about 8,000 acres in the last years, and in Mysore of 16,000 acres in the last two years; t total contraction was inconsiderable, for it amounted to only acres in the last two years. Previous to 1894 the total area coffee had not reached the present area. So far, then, as r the extent of land under cultivation no great change has yet place. But this cannot be said in respect to the yield, for w the yield in 1885, in all India, was nearly 35 million lbs., i upwards of 38 million, and in 1895 upwards of 40 million, in was 26 million, and in 1897 barely 24 million. The yield in M Tinnevelly, South Canara, Malabar and the Nilgiris underw diminution, for in the last four years it was considerably in of the yield in the immediately preceding three years—the average in the former period being 11⅕ million lbs. and in the 8 7/10 million lbs. But in Mysore the yield last year was not more than 4½ million lbs., or only a half what it was in 1896; a what it was in 1895, and little more than a fifth what it was i In Coorg the yield last year was 7 million lbs. as against 5 mi 1896, and nearly 11 million in 1895 In Travancore and Coch yield was similarly 477,843 lbs. as against 333,732 lbs. and 1,3 lbs. The contraction of the yield is partly attributable to th of rain; but falling prices and unremunerative markets have ex a most depressing influence on production.

Taking the number 100 to represent both area and produc 1885, it is found that in 1897 the area had increased in the r 116, but the production had declined in the ratio of 69. The estates in India give employment to 433,639 persons (of whom are permanently and 95,820 are temporarily employed), w equal to one person per 2·06 acres. 88 per cent. of the coffe duced is exported. Of the 28⅘ million lbs. exported in 1897- United Kingdom took about 12¾ million lbs., France 8⅘ m Asiatic Turkey, Persia, and Arabia nearly 1⅕ million lbs. (c perhaps, for conversion into so-called "Arabian" or "Mocha" Austria and Germany about 800,000 lbs., &c. The outlook for planters in India—what with the artificial rate of exchange, a glut of Brazil coffee in the markets—is not a cheerful one; may be remembered that when a few years ago Ceylon was threa with ruin by the great decline in coffee, she found salvation Of course too much tea can be produced, just as well as too coffee, but in the long run production in excess of consumption out its own cure.—*Madras Mail.*

NOW UP AND NOW DOWN.

NOTICE the slender column of mercury in your thermometer day it is longer than it was yesterday; to-morrow it may be still, much shorter; you can't tell in advance. So it varies wi amount of heat in the atmosphere. Very good; but we all that before you say.

Take note of another measuring instrument, then; one tha carry about whithersoever you go. We often hear one person another, "His spirits are very mercurial," meaning that they fall under slight influence. But others have protracted peri depression of sprits, sometimes threatening permanent melan In fact, instances of this kind are getting to be alarmingly co and any suggestions as to the cause and the remedy must be w to society at large.

Speaking of a recent illness of her own, Mrs. Hagar P says the doctor pronounced her ailment to be "nervous deb The phrase is familiar and expressive; and the doctor used it ordinarily accepted sense. After all we seem to need more

Perhaps we shall get it by turning a leaf backward and finding out how the trouble began.

"In July, 1889," says the lady, "I felt strangely weak and out of spirits. I could scarcely persuade myself to eat anything, and when I did the food caused me much distress in the stomach and pain in the chest. Neither did I get any strength from it, but grew more weak and nervous. Later on I had frequent attacks of dizziness and fainting fits, which would come upon me in the street, so that I often came near falling to the ground. Sometimes I had two or three such attacks in a single day. The doctor said I had nervous debility, but the medicine he gave me did no good.

"Better and worse I suffered in this manner for about three years, no treatment availing to relieve me. At Easter of 1892 my mother brought me a bottle of medicine of the same kind that had cured her of liver-complaint. I began using it, and in a short time I could eat better and my food digested without giving me any trouble or discomfort. I grew stronger, the fainting fits gradually ceased, and I regained my health. (Signed) Hagar Percival, 25, Lind Street, County Road, Walton, Liverpool, July 19th, 1893."

In a letter dated November 30th, 1892, and written at his home, 142, Shepherd's Bush Road, London, W., a correspondent states that in the year 1883 he fell into a condition of nervous debility. He took medicines in plenty, but grew worse and worse notwithstanding. The early peculiarities of his case were exactly the same as in the case of Mrs. Percival above named.

"One day," he declares, "a friend of mine, Mr. Charles Swan, of King's street, told me of a medicine from the use of which his sister had derived great benefit under like circumstances. I had once began taking it, and before I had finished one bottle the pain and distress left me, my nerves were steady, and I gained strength. After I had used three bottles I was in as good health as I was before the attack the previous spring. Appreciating the value of a remedy which proved able to do what no other could accomplish, I am perfectly willing to have the fact made public. (Signed) Frank William Deacon."

The nervous depression in both these cases, as in most others, was the direct consequence of the circulation of impurities of the blood The extreme melancholy and distortion of judgment witnessed in hypochondriacs arises from the same cause; and (*this point is for your memory*) the cause underlying all, is indigestion and dyspepsia, which creates these impurities in the stomach and scatters them through the system.

To have strong nerves we must have pure blood; to have pure blood we must have perfect digestion, and to have *that* we must do what these two people did, use Mother Seigel's Curative Syrup. They used it as soon as they heard of it. Warned by their needless suffering *you* will use it the moment you feel the first symptoms of the coming evil.

MARKET REPORT.

COFFEE.

Messrs. Wm. Jas. & Hy. Thompson's Report of the Colonial Markets for the Week ending October 19th, 1898, says :—Bank rate 4%, Bombay Exchange closes at 1s $3\frac{1}{16}$d. Brazil Exchange $8\frac{7}{32}$d. Rupee paper $3\frac{1}{2}$% $62\frac{3}{8}$. Silver $27\frac{11}{16}$d per oz.

We have no change to report in this market; good and fine qualities continue to sell well, but ordinary and common are again lower. Further supplies of Guatemala have met with a poor demand, being mostly bought in. Brazil markets continue flat.

At the Dutch sale held yesterday in Rotterdam, 21,090 bags 21 cases Java were offered and sold at irregular prices, mostly 1 to 4 cents below valuations, good ordinary Java selling at 34 cents, againtst 35½ cents in September.

Futures have remained dull, closing prices showing a decline of about 3d per cwt., viz. :—Good average Santos in Havre, December delivery, fcs. 37.25, in Hamburg pf. 31, and No. 7 low ordinary Rio in New York $5.45.

Daily receipts averaged 10,000 bags in Rio, and 22,300 bags in Santos.

Prices realized at auction for the principal Marks of East India :—

NEILGHERRY.

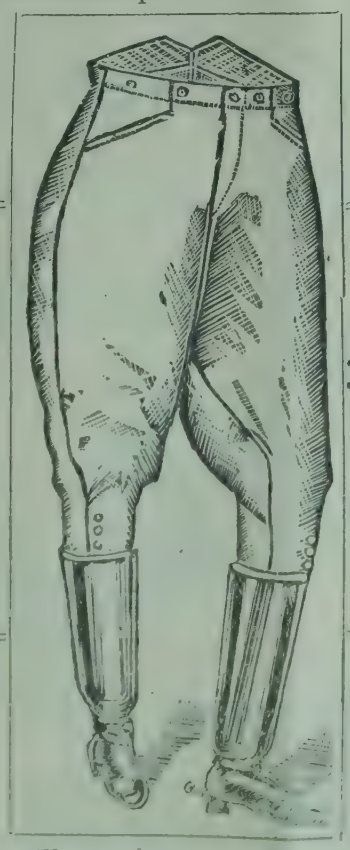
	A	B	C	PB	T
Terramiah ...	55/6	51/–	46/–	53/–	33/–
Glenmore ...	70/–	58/6	45/6	53/–	33/6

Landed last week ... 584 *tons. Deliveries* ... 729 *tons. Stock*...19,157 *tons*
Do. last year ... 462 ,, ,, ... 763 ,, ,, ...10,705 ,,

The following is from the *Commercial Record* (*London*) of 21st ultimo :

BREECHES TRADE.

Breeches-making is a *specialité* with us. **Mr. Smith,** the proprietor, deals with every pair, and we warrant turning them out to satisfaction as regards fit, style and workmanship.



OUR SPECIAL

MILLERAIN

KHAKI TWILL

8/8 BREECHES.

Putties 8 ft. long Rs.2.

Box Cloth Leggings Rs.9.

Newmarket Leather Leggings Rs.12.

Read this letter; it will convince you that we *can* make Breeches. **Mr. H. S. Dickins,** of Yercaud, writes: "*The Breeches received; they fit me perfect. I can, with confidence, recommend you as Breeches Makers to all my friends. We get our kit from Bombay, and have to pay about double your price.*"

[w. 1-10-98—31-3-99.] E. D. SMITH & CO., MADRAS.

WIELE'S STUDIO,

SOUTH PARADE,

BANGALORE.

The Studio, *par excellence* for High Class Artistic Photography in all its branches.

BROMIDE ENLARGEMENTS from any picture, however faded or otherwise damaged, carried out to perfection.

OIL PAINTINGS, and Crayon Drawings unsurpassed.

Out-door Photography at a moment's notice.

PHOTOGRAPHS of moving objects, such as horses in action, Ladies and Gentlemen riding their bicycles, &c., always successful.

Picture Framing in good Taste and First Class Workmanship.

VIEWS OF SOUTHERN INDIA.

Terms Moderate. MR. E. F. H. WIELE conducts his Studio personally.

[w. 15-10-98—14-1-99.]

The market continues very dull and the general quality of the supplies offered during the week has not conduced to any improvement in the demand. Ceylon sold at relatively high figures. The bulk of the quantity brought to auction consisted of Central American, which were only partly sold, whilst Vera Paz was very firmly held and nearly all withdrawn. Colombian was the only growth which attracted attention and high prices were obtained for bold well picked, inferior grades on the other hand going cheaper. In the market for "futures," quietness has generally prevailed with rather easier prices, but closing firmly at the decline, viz. :—

London	...Santos	...December	delivery	... 30s. 3d.
New York	...No. 7 Rio	... „	„	... 5·45 cents.
Hamburg	...Santos	... „	„	... 31 pf.
Havre	...Santos	... „	„	... 37½ francs.
Holland	...Good ordinary Java	...		... 34 cents.

At the Dutch Trading Company's auction on Tuesday of 21,090 bags 21 cases, held in Rotterdam, irregular prices were realised, mostly 1c to 4c below valuations, good ordinary Java, valued at 35c, selling at 34c, as against 35½c in September.

Imports Deliveries and Stock of Coffee in London are as follows :—

		STOCK.		IMPORTS.	
		1898.	1897.	1898.	1897.
West India	... tons	491	324	1,672	824
Ceylon	... „	125	170	325	526
East India	... „	1,644	1,628	5,613	5,186
Mocha	... „	523	428	761	534
Brazil	... „	4,104	2,360	3,620	2,400
Other Foreign	... „	11,944	5,597	28,487	21,817
Total	... „	18,831	10,507	40,478	31,287

		HOME CONSUMPTION.		EXPORT.	
		1898.	1897.	1898.	189
West India	... tons	282	285	1,236	
Ceylon	... „	117	153	189	
East India	... „	2,069	1,950	3,007	2,4
Mocha	... „	593	442	141	
Brazil	... „	788	1,103	1,702	2,
Other Foreign	... „	7,448	7,579	13,767	11,
Total	... „	11,297	11,512	20,042	17,

The preceding figures exhibit—

In the imports an increase this year of 9,191 tons.
Home consumption a decrease of 215 „
Export an increase of ... 2,629 „
Stock an increase of ... 8,324 „

This week's auctions have gone off as under :—

CEYLON.—*Plantation.*—3 casks 1 tierce 4 barrels sold, triage 39s, s 91s, middling 106s, dull bold 109s, peaberry 95s.

MOCHA.—93 packages shortberry bought in at 95s.

JAMAICA.—Of 123 barrels 51 bags offered 20 barrels 51 bags sold, ordinary dull pale 31s 6d to 32s 6d.

COSTA RICA.—Of 814 bags offered only 100 bags sold, good t ordinary dull pale 34s 6d to 45s, peaberry 34s 6d to 43s 6d.

GUATEMALA.—Of 1,890 bags offered only 700 bags sold, smalls 27s 36s, fine to fine fine ordinary greenish 41s to 51s, peaberry 43s to London-cleaned, smalls 35s 6d to 39s, good colory 84s to 85s 6d, pea 65s to 88s.

NICARAGUA.—9 bags dingy sold at 35s 6d.

FRESH STORES.

A large Consignment has just been unpacked consisting of Oilmansto Tinned Provisions, Luncheon Delicacies, Jams, Crystallized Fruits; a good assortm of Cadbury's Chocolate Drops, Gruyer Cheese, &c., &c.

Copies of our new Revised Price List are now available.

Great care is taken in the selection of goods for Out-station Clie

ROYAL EMPORIUM,

BANGALORE

[w.—3-9-98—t.f.o.]

Agents for LEA & PERRINS' WORCESTERSHIRE SAUCE.

CROSSE & BLACKWELL'S, LTD.

By Special Warrant Purveyors to The Queen AND Empress of India.

CELEBRATED OILMAN'S STORES.

[w. 1-10-98—t.f.o.]

HONDURAS.—Of 120 bags 20 bags damaged sold at 34s.

VERA PAZ.—Of 1,183 bags catalogued only 160 bags sold, smalls 28s to 37s, ordinary 41s, fine ordinary, damaged, 50s, peaberry 72s.

SALVADOR.—Of 268 bags offered 60 bags sold, small pale 28s to 29s 6d, good ordinary 36s.

COLOMBIAN.—Of 1,082 bags offered about 800 bags sold, smalls 36s, fine ordinary 45s 6d; London-cleaned, smalls 29s 6d to 50s, damaged and dull soft greenish mixed red 52s to 55s 6d, low middling soft greenish 63s to 65s 6d, middling greenish colory 68s to 69s 6d, good middling 74s, good and bold 80s to 88s, peaberry 76s to 95s.

BRAZIL.—Of 941 bags Santos 100 bags washed sold at 33s, landed terms.

Havre, Oct. 20—Market steady. Santos good average December opened at 37¼f. and closed at 37½f., March opened at 37¾f and closed at 38f.

Hamburg, Oct. 20.—Good average Santos December opened at 31m and closed at 31m.

New York, Oct. 19.—Closing prices of No. 7 Rio were as follow :—

	Oct.	Nov.	Dec.	Jan.	Feb.
Oct. 19	5·30	5·30	5·45	5·55	5·65
Oct. 18	5·35	5·35	5·50	5·60	5·65

To-day's catalogues presented:—15 bags East India, 40 bags Johore Liberian, 551 bags Nyassaland, 915 bags Columbian, 92 bags Salvador, 112 bags Peruvian, and 79 bags New Granada. Good colory qualities sold at steady rates, but inferior grades were flat and mostly bought in.

TO-DAY'S HAVRE AND HAMBURG COFFEE TERMINAL QUOTATIONS.

(Communicated by Mr. Edward Nauen.)

	Havre.			Hamburg.	
	10.15 a.m.	12.20 p.m.	3.30 p.m.	10.40 a.m	2.35 p.m.
Dec., 1898	37¼	37¼	37¼	31	31
March, 1899	37¾	37¾	37¾	31½	31¼
May	38	38	38	31¾	31½
Sept	38¾	38¾	38¾	32½	32¼
	Quiet. Value.	Quiet. Value.	Quiet. Sellers.	Steady. Value.	Quiet. Buyers.

TEA.

The *Commercial Record* of 21st ultimo says :—

CHINA.—The few sales recorded privately during the week include good Ningchow at 9d to 10d per lb. for export, but the market generally is extremely quiet. Public sales since our last have offered 5,248 pkgs. which were partly disposed of, Green Teas meeting the most enquiry.

INDIAN.—The amount offered was about on a par with last week, viz., 48,300 packages, against 48,900 packages, and 45,900 packages for the corresponding period a year ago.

There was again a brisk demand, and previous rates were about maintained for all desirable liquoring parcels, although as is usually the case irregularity was at times noticeable, chiefly in Broken Pekoes. Quality on the whole continues useful, some of the Dooars invoices possessing better flavour, while Cachars and Sylhets occasionally mark a slight improvement. Bidding for the most part was concentrated on Teas with good cup, but common to fair Pekoe Souchongs also received more attention than of late. Pekoes from 7d to 9d per lb. are still comparatively cheap.

For 34,300 packages on Estate account 8¼d per lb. was obtained, *versus* 9¼d per lb. for 31,800 packages, and 9⅜d per lb. for 27,300 packages in the two foregoing seasons.

CEYLON.—Larger supplies were brought forward aggregating 24,500 packages, opposed to 12,900 packages on the 11th inst. and 19,100 packages at this date in the preceding year.

Competition was somewhat more general and prices were firm for nearly all descriptions, with an upward tendency for the most attractive lines. Common to good leafy kinds were steady. Medium Pekoes and Broken Pekoes were better supported. Fine and choicest lots, particularly Broken Orange Pekoes, in many instances fetched 1d per lb. higher, the following being among the best :—Talawakelle 1s 8½d, Dimbala 1s 6¾d, Campion 1s 6½d, Diyanilakelle 1s 6¼d, Hauteville 1s 6d, Annfield, St. Clair and Taurus 1s 5d per lb.

On account of the greater proportion of low-priced Tea included in the catalogues, the average is the same as on the 13th inst., viz., 8¾d per lb. At the 21st October, 1897, it was 8⅞d per lb.

Shipments from Colombo to Great Britain for the first fortnight of the month were 3½ million lbs.

JAVA.—In the absence of sales there is nothing to report except that 1,100 packages are advertised for the 27th inst.

Deliveries.

The clearances of all Tea (on which duty has been paid) from the London warehouses, as per official returns, were :—

From 1st to 18th Oct., 1898.....10,734,198lbs.
„ „ 1897.....9,978,923 „

During the week the following have been printed for sale by public auction :—

	Sold. Pkgs.	Withdrawn. Pkgs.	Total offered. Pkgs.
India	43,197	5,078	48,275
Ceylon	23,805	741	24,546
Java		355	
Total	67,002	5,819	72,821

Also 960 packages from second hands.

Messrs. Gow, Wilson and Stanton's Indian, Ceylon, and Java Tea Report, dated October 21st, 1898, says :—

QUANTITY BROUGHT TO AUCTION IN LONDON

FROM 1ST JUNE TO DATE.

	Indian.	Ceylon.	Java.
1898-1899.	531,417 pkgs.	486,604 pkgs.	18,649 pkgs.
1897-1898.	527,860 „	520,408 „	17,585 „

48,783 pkgs. Indian
25,085 „ Ceylon
... „ Java.
} Total 73,868 packages were offered in public auction this week.

The past nine months have shown a remarkable increase in the quantity of Tea exported from Ceylon direct to markets outside the United Kingdom, viz. :—

1898.	1897.	1896.	1895.	1894.
lbs. 17,037,941.	lbs. 11,911,213.	lbs. 10,053,323.	lbs. 8,813,641.	lbs. 7,006,167.

Progress has been most important in Australia, North America and Russia. Considering the export of Ceylon Tea from Great Britain during the above period has also materially increased, the quantity now taken abroad has become a very important trade factor, and has already caused a substantial reduction in the supply to this country.

Distribution of Tea exports from Ceylon from 1st January to the end of September.

	1898.	1897.	1896.	1895.
United Kingdom ...	72,404,989	75,302,106	69,442,510	65,857,111
Austria ...	12,633	14,360	29,454	2,573
Belgium ...	10,540	9,470	30,695	8,113
France ...	61,419	59,403	44,792	31,697
Germany ...	252,529	189,503	75,721	176,738
Holland ...	22,631	15,305	3,889	10,781
Italy ...	3,270	5,071	7,257	5,473
Russia ...	1,634,865	324,612	224,012	206,895
Spain ...	27,650	21,570	39,010	42,275
Sweden ...	28,450	35,123	4,925	750
Turkey ...	25,839	7,280	14,905	7,367
India ...	843,152	729,793	693,332	636,869
Australia ...	10,960,388	6,205,561	7,891,692	6,867,390
America ...	1,816,009	569,708	439,286	297,343
Africa ...	294,448	174,685	75,386	90,726
China ...	852,173	469,468	218,652	235,601
Singapore ...	46,426	22,601	55,545	23,752
Mauritius ...	7,300	11,790	91,790	109,703
Malta ...	138,219	45,910	113,050	59,595
Total lbs...	89,442,930	87,213,319	79,495,833	74,670,751

Indian. With a rather lighter auction and a strong general demand, prices were firm, occasionally showing an upward tendency ; Pekoes and Broken Pekoes and Broken Pekoes of good liquor sold well. The official telegram from Calcutta gives exports to United Kigdom for first half of the month as 10,300,000 lbs., against 8,790,000 lbs. for the corresponding period of last year, making the quantity from the 1st April to the middle of October as 80,217,000 lbs., against 77,840,000 lbs. last year. Averages :—"Digaltarang," 1/4½; "Amal T. Co. Dooteriah" and "Budla Beta K," 1/4.

Total Tea sold on Garden account 1st June to date 1898, 377,064 pkgs., av. 8·76d. 1897, 377,464 pkgs., av. 9·10d.

		1898.	1897.	1896.	1895.
DUST.	(Fair ordinary, dark liquor) ...	3½d	3¾d	4½d	4¾d
FANNINGS.	(Red to brown, strong rough liquor) ...	4d	4¼d	4¾d	5d
BROKEN TEA.	(Brownish to blackish, strong liquor) ...	6d	6¼d	6¾d	6¼d
PEK. SOUG.	(Blackish greyish, useful liquor).	6¼d	6¾d	6½d	7¼d
PEKOE.	(Greyish to blackish, some tip, useful liquor) ...	7½d	7¾d	8d	8d
PEK. SOUG.	(Blackish greyish, inferior liquor).	5d	5d	5¼d	5¾d
PEKOE.	(Blackish greyish, some tip, inferior liquor) ...	5½d	5¾d	6d	6¼d

Ceylon. The tendency of the market was very steady, any change being in a slightly upward direction, Teas of the better class especially selling at good prices. Averages worthy of note :—"Campion" and "Hamputale Co. K," 1/1¼ : "Diyanilakelle," "Hauteville," S T & L "Brookside" and S. T. Co. "St. Leonards," 1/1. Average for week 8·46d., against 8¾d. same period last year.

Ceylon Tea sold on Garden Account 1st January to date 1898, 921,265 pkgs., av. 7·67*d*. 1897, 906,996 pkgs., av. 7·69*d*.

	1898.	1897.	1896.	1895.
PEKOE SOUG. (Ordinary leaf; fair liquor) ...	6½d	6¾d	6½d	7½d
PEKOE. (Ordinary leaf; little twist; fair liquor) ...	7¾d	8d	8d	
PEKOE SOUG. (Rather bold leaf; indifferent liquor) ..	5¼d	5½d	5d	
PEKOE. (Somewhat bold leaf; indifferent liquor) ...	5¾d	6¼d	6d	

Java. No auctions were held this week, but catalogues are issue 1,134 packages for sale next week, 7,144 packages are advertised for in Amsterdam on the 27th October.

PUBLIC SALES OF SOUTH INDIAN TEA.

(AVERAGE FOR ALL INDIA 8d.) *October 21st.*

GARDEN.	Total.	Average.	Broken Org. Pek. or Flowery Pekoe.		Pekoe and Unassorted.		Broken Pekoe.		Pekoe Souchong.		Broken and Souchong.		Fannings, D and Variou	
	Quantity	Price.	Quantity	Price.	Quantity	Price.	Quantity	Price.	Quantity	Price.	Quantity	Price.	Quantity	Pri
Neilgherry ...	**117 p**	**6·18**												
C ...	37½c	7	37½c	7	...	...	...	...	...	...	...	...	...	
COA ...	43	6½	...	...	19	7¼	9	6½	...	...	...	...	15	5
Highland T Grade.	25 p	5 5¼	5½c	6	15	5¼ 5½	...	...	...	...	...	...	5½c	3
„ ...	12	5¼	1	5¾	7	5½	...	...	...	...	3	4¾	1	3
South Wynad ...														
Perrindotty ...	90 p	6¾	31 p 8	¼ 1/10½	20	6¼	23½c	8	16	5¼	...	...	...	
Travancore ...	**556 p**	**7·27**												
Glenmary ...	134 p	7¼	72	7¼ 8½	23	5¾	...	...	...	...	...	...	39 p	4
Isfield T Co Isfield.	77	6¼	...	...	23	5¾	26	7	28	5¾	...	...	...	
Penshurst ...	95 p	8	56 p	7¼ 1/2	21	6	8	8½	7	5¼	...	...	3	5
Travancor TEC P...	250	7½	20	7	45	5¾	185	6½ 9¼	...	...	...	...	...	

MELBOURNE.

Mr. Alfred Harvey & Co.'s Monthly Report states :—

GENERAL.

Shipments from all ports are 14,150,000 lbs., as against 12,989,624 lbs. at same time last year.

The "Fazilka," "Bhundara," and "Bucephalus" have arrived from Calcutta during the month, and the "Darius" and "Euryalus" are afloat, so that shippers have had no occasion to complain of want of space. The Calcutta market remaining favourable for colonial buyers, a fairly good supply has been shipped.

Colombo buyers continue to complain of the scarcity of tonnage, the mail steamers having little or no available space for Australian ports for some time past, and consequently, although the market is favourable, it is impossible to send forward supplies in anything like sufficient quantities.

It seems strange that, with such princely rates as those now ruling from Calcutta and Colombo to Australian ports, a substantial attack is not made upon this valuable monopoly by some of the large steamship owners. Should a well-equipped company start even a monthly service, it could easily command a full freight throughout the year, and at the same time benefit tea, as also jute importers.

Chinas arrive in well-regulated quantities, but buyers are not so eager as they were, except for common kinds up to 5¼d. Prices are easy for all better grades and fancy kinds, whilst the supplies in Foochow are small, and rates again firmer; hence importers maintain a firm attitude.

Stocks in bond on the 1st October were 1,689,637 lbs.

CEYLON.

Shipments from Colombo are 7,000,000 lbs., as against 5,750,000 lbs. at the same time last year.

Only two public sales have been held, when 650 packages were sold at 6d. to 7d. for common to useful Pekoe Souchongs, and 6¼d. to 9¼d. for common to good hill-grown Pekoes.

Arrivals, which have been upon a very restricted scale, owing to scarcity of freight, have commanded the keenest competition as soon as shown, at extreme rates. Sales made show Dust to be worth 4d. to 4½d.; Fannings, 5d. to 6½d.; common rough Leaf, 6d.; milled and rough leaf Souchongs, 6¼d. to 6¾d.; even leaf Pekoe Souchongs, 6½d. to 7½d.; good leaf Pekoes, 7½d. to 11d. for good quality; tippy Orange Pekoes, 8d to 1s. 2d. for choice hill-grown.

Stocks in bond on the 1st were 288,227 lbs.

PEPPER.

Says the *Record* of 21st ultimo :—

Black.—A urther depreciation in value occurred, but at the close a firmer feeling is apparent. On the spot fair Singapore has sold at to 4⅝d. To arrive about 150 tons have changed hands—Singapore, and August-October (s.) at 4 9/16d to 4 11/32d, September-November 4 9/16 4½d, October-December 4 11/16d to 4 9/16d, November-January 4⅝d, and J ary-March 4¾d.

The shipments of Black Pepper for the first half of October com as follows :—

	1898.	1897.
U.K.—Singapore.....380	430	70 70
„ Penang..... 50		*nil*
Continent.....	30	*nil*
United States.....	70	60
Total tons ...	530	130

At auction on the 19th inst. 56 bags light shelly Acheen @ Singa sold at 4¼d; 50 bags Aleppy retired at 4⅜d, also 80 bags Tellicherry 4⅝d per lb.

White is nominally unchanged on the spot in the absence of sales, to arrive lower prices have been accepted. In the latter position tons have been sold—Singapore, October-December (s.) at 8 1/16d dow 7⅞d, December-February 8 1/16d, January-March 8⅛d; Penang, Septe to December (s.) 7⅜d, November-January 7 7/16d, December-February and January-March at 7 9/16d to 7 19/32d per lb.

The shipments of White Pepper for the first half of October com as follows :—

	1898.	1897.
U.K.—Singapore... 140	220	80 110
„ Penang..... 80		30
Continent	160	60
Total tons.... .	380	170

At public sale on Wednesday 12 cases Singapore passed the ham unsold at 10½d for fine, also 102 bags Siam at 8½d per lb.

Black quiet. Singapore 4 9/16d spot and October-December shipm sales unimportant. Of White, 20 to 30 tons Singapore sold, November-January 8 1/16d and December-February 8⅛d per lb.

GINGER.

Cochin.—A barely steady market obtains, but sellers do not p some even looking for higher prices in the near future. Catalogues Wednesday embraced 51 cases 535 bags, of which 20 cases 230 bags at valuations : limed medium and small roughly cut and scraped, wo 40s, good medium and small washed rough 23s, ditto rather leaner rougher 21s per cwt.

PLANTING OPINION.

A WEEKLY JOURNAL

WRITTEN BY PLANTERS FOR PLANTERS.

VOL. III.] **MADRAS, SATURDAY, NOVEMBER 19, 1898.** [No. 46.

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SEASON REPORTS.

TO OUR SEASON REPORTERS.

Please post your next reports to reach Madras on Friday, the 25th November, 1898.

Season Reports should be sent to the Printers, Messrs. Addison & Co., direct, and not to *Planting Opinion* Office.

Coorg.

Polli Betta, 16*th Nov.*—*Weather.*—Over 3 inches of rain last week. 1·5 in. one day. Since, it has been cloudy and drizzly in the evenings, but the moisture has not been enough to measure. It is years since the N.E. rains have been known to continue so late. They are probably helping trees bearing heavily, but must be somewhat of a nuisance where they are taking in *Crop*, which is in full swing in the other half of the district. *Plant-diseases.*—In spite of the continued rain, "leaf" appears to be passing off and coffee is looking very well. It is to be hoped there will be no second attack. These rains will diminish borers next season. They delay the flight season, and conditions afterwards won't be so favouring to the hatching out of the eggs.

South Mysore.

Mudigere, 15*th November.*—Your P.D. is one of the people who want hanging. He makes me say that some estates are on the "mind" instead of "mend." I wonder what he has got on *his* mind. It is a minor offence to say that there is "more" fever instead of "some," as I probably wrote. The *Weather* has improved very little, and we may get a record November in the way of rain. We are well over average, though of course this year's total fall cannot be compared with that of 1896 or 1897. There has been a little sun, but far too little, and for those who are picking I can imagine that things are most unpleasant. *Diseases.*—Leaf-disease is clearing off, having left some places untouched, while others have been affected from mildly to moderately bad. There has been nothing approaching the go of 1896. Taking it generally, I fancy that only very heavy bearing coffee and bad situations have been seriously touched. *Labour* seems to remain much the same. Coffee picking and paddy cutting will clash more than usual this year, I am afraid. *Health* remains fair; some fever and cough, but not much. *Crops* will be very late. There seems to be little ripening going on. It is not to be expected with the weather we are having. I hear they are picking in the West, where rain was earlier; but what little I have done is all the result of December rain, and a 5-cent drizzle in early March. Estimates generally are maintained, but one can only expect to have a larger proportion of cherry and tails than usual; some estimates have been raised, and I hear of none being lowered. Although not strictly a planting subject, one most interesting to many at this season would be a discussion on the various powders in use in India. There is practically no big game left in this district with all the native guns about, so rifle powders are

of less general interest than those for snipe and duck shooting. Ballistite has many friends, Schultze would have more if it would keep over a monsoon, and Amberite is worth trying, I am sure. It is strange that none of the gun-makers or gun-sellers appear to find it worth while to start a range for experiment.

THE GOVERNOR OF CEYLON ON THE TEA INDUSTRY.

HIS Excellency the Right Hon'ble Sir J. WEST RIDGEWAY, in his address to the Legislative Council of Ceylon on the occasion of the annual opening on 7th instant, made some very important references to the planting industries of the Island, and more particularly to Tea, its staple product. In pronouncing certain fears exaggerated, Sir WEST RIDGEWAY at least acknowledged that they were not absolutely groundless; but subsequently he was at pains to give a view that leans somewhat more towards optimism than towards the dark reverse side of the picture that has been persistently exposed of late. The Governor admits that the Planting industries have created Ceylon, and that it is still mainly dependent on them—chiefly on Tea. He admits that during the last year or two there has been a depression in the Tea industry. Indeed, he says:—"Responsible men among us have unmistakably suggested, if they have not positively asserted, that tea can no longer be profitably cultivated in several districts of the Colony, and that before the end of the year many estates will be abandoned and the capital expended upon them sacrificed." He considers it his duty to suggest consideration of the question whether the Ceylon tea industry is really doomed, or its days numbered, and he then proceeds to express his own opinion in the following emphatic words:—"My own opinion throughout this agitation has been that the fears which I have heard expressed on all sides of me are exaggerated, and that although there has been, and may continue to be, depression through the rise of exchange, falling prices, and (if I may suggest it) the reaction which inevitably follows undue inflation—and consequently loss in individual cases—yet this great industry is on the whole perfectly sound and stable, and in the absence of a visitation of God, against which the efforts of man might avail nothing, the tea industry of Ceylon will and must continue to hold its own against other tea-producing countries, even although the high profits which have been hitherto realized may to a certain extent be curtailed, and consequently the value of shares may fall. But is there a probability of a further fall in profits? Exchange, whatever the solution of the vexed question now under consideration may be, is not likely to rise much higher than it is at present, and, on the other hand, it will probably be comparatively fixed and stable, and free from those fluctuations which have been the chief obstacle to the investment in silver countries of European capital. There is a point below which prices cannot fall, and that point appears to have been reached. Prices are, I understand, now recovering, and, although the amount of tea exported from Ceylon and India in the present year is considerably larger than in 1897, the prices have during the current year been on an average substantially higher than in 1897. The exportation of tea to the United Kingdom has been somewhat reduced, but compensation has been sought and found in the new markets in other parts of the world discovered by the enterprise and energy which always characterized the planters of Ceylon."

We make no apology for giving at length so impo a pronouncement from such a high authority and tinguished statesman as the Governor of Ceylon. declares that he never has believed, and he does not believe, in the ruin of the staple industry of Ceylon thr economic causes. Upon his view of this point hinge best part of his administrative policy. Nothing but a b such as he has expressed would justify Sir WEST RIDG in so progressive a policy as he has adopted, and the of the sincerity of his belief is to be found in the fact he adheres to this policy, and means to push rai extension and other progressive measures to the of his ability and resources. At the same time does not wish to see the island entirely dependen one industry. Its prosperity was once founded on C and Coffee failed. But while Tea does not hold the pred nating position once occupied by Coffee, any dis to it would certainly entail great privation on the Co Not ruin, says the Governor, "not even the partial which temporarily followed the fall of the coffee indus The Colony is, he observes, far more wealthy than it twenty years ago, and its wealth is much more w diffused. "The country is more developed, new indus have sprung up; all branches of our revenue—our sav banks, the railway traffic, the consumption of luxuries the adoption of higher standards of living by the ma the purchase of land by natives—are certain indicatio increased and diffused wealth and prosperity." To sup these remarks, he quotes statistics of trade, compa 1877—"the halcyon year of coffee, when that indu touched the highest point of its career"—with 1897, w was "not a year of more than average prosperity for supply apparently having overtaken demand, prices b depressed, and exchange causing great stringency i money market. He shows that the total trade of 1897 of the value of 1,831 lakhs, against 1,234 lakhs in 1877 increase of 32 per cent. The imports in 1897 were va at 980 lakhs, against 627 lakhs in 1877: an increase of 5 cent.; while the exports were respectively 850 and 611 la an increase of 30 per cent. Of the 611 lakhs of expo 1877, coffee represented 500 lakhs, or 81 per cent., whi the 850 lakhs of exports in 1897, tea represented 470 la or only 56 per cent. This shows that, fortunately for prosperity of the Colony, important as tea is, it has no extraordinary preponderance of the coffee industry twenty years ago. Sir WEST RIDGEWAY proceeds:— 1877 Ceylon might, indeed, have been described as a cou dependent on one industry, for while coffee formed 8 cent. of her export trade, no other of her products am to 4 per cent., the produce of the cocoanut palm b just under that figure. In 1897 our largest industry f but little over half of our total trade, while the coco palm produce has advanced from 3·9 per cent. to 15½ cent., and may be now classed as a great industry whi yearly increasing in importance; plumbago, too, citronella have increased their relative importance by than threefold, cinnamon by two and-a-half-fold, and a nuts by 50 per cent." Two fresh introductions have t place since 1877, cacao and cardamoms. Cacao from 1877 rose to 51,101 tons in 1897, valued at 13 lakhs, o per cent. of the total. Cardamoms, from one-fifth of a

in 1877, have risen to 10 lakhs, equivalent to a little over 1 per cent. of the total. Cinnamon, the mainstay of the Dutch revenue, which fell on such evil times that in 1877 the export was valued at but 7½ lakhs, or about 1 per cent. of the total, recovered in 1897 to 22 lakhs, equal to 2½ per cent.

Elsewhere, the Governor of Ceylon remarks that the great hope of the industry is the opening out and creation of new markets, and vigorous efforts are being made in that direction. For instance, the exports to Russia up to the 25th October last increased, as compared with those of last year, from 373,192 lb. to 2,021,285 lb., to America from 604,066 lb. to 1,906,333 lb., and to Australia from 10,212,489 lb. to 12,279,692 lb. Labour has never been more abundant. The arrivals in 1897 were 153,000, the excess of arrivals over departures being 43,862, or only 2,619 less than the natural increase of the population of the Island by births. Only in 1876 and 1877 have there been so many arrivals. The figures of those years were 164,000 and 167,000, against 153,000 in 1897. During the first eight months of this year there have been over 100,000 arrivals. The departures were 77,000. The condition of tea from the point of view of cultivation has been good. Hence there is certainly a good deal to set against pessimistic utterances and forecasts. Sir WEST RIDGEWAY has, in short, made out a good case for Tea, and it is probable that his cheerful review of the situation will do something to re-establish confidence. He touches keenly upon the subject of over-production when, *apropos* of the extension of Cardamom cultivation, he refers first to this as "the inevitable result" of the fact that this has proved a particularly remunerative crop, and says next:—"The market for this product is small." These seven words are pregnant with warning. Whether growing cardamoms or tea, coffee, or cacao, cinnamon or cocoa-nuts, planters must always realise that when supply exceeds demand, values will suffer from depression. We take it that Sir WEST RIDGEWAY wishes his warning to be read between the lines of all his observations on Tea, not to apply to cardamoms alone. The market for Tea is not a small one; but it has limits: and the moment demand gets in excess of the world's requirements, the reduction of prices sets in to undermine the evil of over-production.

TEA STATISTICS.

WE give on another page an interesting series of statistics that has been issued from the Office of the Director-General of Statistics. It shows that in Southern India the area of land under Tea is:—

Madras	...	6,335 acres
Travancore and Cochin	...	30,076 „
Total	...	36,411 acres

but these figure are avowedly unreliable. Special mention is made of Travancore planters as unwilling to furnish information. We cannot but think that a change of policy is desirable. The statement is made that although the area under mature plants in Travancore and the labour force are shown to have increased three-fold, the quantity of manufactured leaf is returned at just half the figure for the previous year. This might be read as pointing to deliberate misrepresentation, but we trust there is no ground for any idea of that kind.

It is interesting to note that Indian consumption may be put down at about 7,000,000 lb., of which no less than 3,000,000 lb. appears to be *imported tea!*

The total is small, as the natives of India are not generally tea-drinkers; but the proportion of imported tea that appears to be retained in India—not re-exported—is excessive.

The Calcutta quotations given would seem to be open to question. For instance, the level for 1873 is given as 100, 1889—77, 1892—71, 1894—52. Yet the average prices for the last three of these years are put down as follows:—

	Broken Pekoe.	Pekoe.	Pekoe Souchong.
	AS. P.	AS. P.	AS. P.
1889	... 9 9	7 5	5 7
1892	...11 3⅓	8 9	6 5¼
1894	...11 8	9 4⅘	7 2⅝

It is not easy to see how such averages can be reconciled with the respective "levels" given above, viz., 77, 71, 52. Apparently a *rise* in price has led to a *fall* in the level!

HAND-MADE *v.* MACHINE-MADE TEA.

A SHORT time ago we touched upon the disadvantages under which South Indian tea-planters labour for want of central factories to manufacture the produce of groups of estates. If machine-made tea is to be preferred to hand-made, there can, we think, be no doubt that small factories must work at a very considerable disadvantage as compared with large ones. Not long ago a Ceylon planter drew attention to the amount of factory supervision that is left, even in large concerns, to low-paid native tea-makers. India, he said—not meaning *Southern* India, we fear—had always had European factory superintendents; and *apropos* of the same subject he added that he thought there could be no doubt that the greatest mistake in Ceylon had been in putting up small factories for each estate, instead of concentrating in large central factories, when the cost of a European tea-maker, divided among the several estates, would not come to much more than the present system, with, he thought, far greater benefit to the estates concerned. On the other hand, the *Indian Planters' Gazette*, alluding recently to the desirability of pushing Indian teas in Russia, said that the Russian consumer eschews tea manufactured by the process in use on English plantations. In his eyes, machinery for rolling the leaf and artificial heat applied to wither it are abomination. Our contemporary observed: "A great Moscow merchant remarked lately that the difference between hand-made sun-dried tea and that resulting from rolling and withering machines is the difference between a waltz played by Strauss's orchestra and the same tune mangled by a barrelorgan! Nor is this all. To suit the Russian taste, the leaves when plucked are allowed to stand in heaps, and are moistened till the process of fermentation sets in, which gives a peculiar, but not disagreeable flavour, and deprives the cheering drink of some of its noxious qualities. When our planters have grasped this fact, then, and not till then, will they find a market for their wares in Holy Russia." By these facts, and by the attempt that is being made (aided by a heavy protection duty) to grow tea in the Caucasus, the *I. P. G.* is led to fear that the chances of Indian tea in Russia are not too bright. This apart, however, we would ask our readers to express their opinions as to whether hand-made tea is really preferable to machine-made, or *vice versâ*. If the former, labour is certainly cheap enough in

Southern India to give the hand process a fair chance, while the difficulty of centralising factories certainly places machinery at a serious disadvantage. It may be said that this subject, like that of leaf-disease in Coffee, has been threshed out *ad nauseam*, and that nothing can be hoped from further discussion. But is this the case? We do not even think it is with regard to leaf-disease.

SIGNED CORRESPONDENCE.

[Under this head, letters, replies and remarks will only be admitted if signed by the writer. The object is to promote the interchange of opinions, experiences, etc., between planters who are willing to support their remarks with their signatures.]

TEA PRUNING FOR THE NILGIRIS.

RAINFALL 50. ELEVATION 5,000 TO 6,000.

Now that the season for this work is approaching, the question that rises up generally is "What kind of pruning shall I do."

From my own observations extending over many years of successful cultivation, I am inclined to think that a *low prune* for *China*, if it needs it, is advisable in the cold months, but if a light prune is to be done, the operation should be delayed till the cold February winds are on, and the light pruning be then quickly got through. A few weeks brings the flush out, and if tender leaves just catch the cold winds the results are unsatisfactory; hence it is better that no risk of this be run.

A light prune in January (or as some do in December) brings the tender shoots out far too early, only to be nipped by the biting cold winds in February.

For flavour in the China, undoubtedly a light prune with manure is the best. The nearest approach to a Darjeeling Tea is thereby possible, if of course the manufacture be regulated and watched.

It is a great mistake to expect the knife to accomplish the work of manuring.

When the Tea is brownish, flavor Congouish, and there is an absence of tip, the usual resource is low pruning, but I think manuring is what is needed oftener, to produce the nice soft buttery leaf that mashes readily between thumb and forefinger.

A low prune on a China bush whose framework has been judiciously preserved and cultivated gives encouraging results, but on a bush already hacked and whose growth is a multitude of suckers, low pruning can only increase the trouble and convert the bushes into brooms. Leaf borne on these brooms never makes good tea. The colouring is always black, and the liquor weak and flavourless. Not all the skill and appliances procurable can make good tea from brooms. I have noted such skill and appliances put to this kind of leaf, and the result has been a 4*d.* average!

Now as to Hybrids and Assams that have been (as I undoubtedly think should be the case) grown as *Standards*, I consider that these should never be low pruned except in June-July.

Pencil pruning, as in the case of China, is best done in January-February.

I have seen bushes of these varieties low pruned in September bleed most profusely; and growth retarded thereby and the bushes sulking for years as the result.

I have been asked if the removal of suckers fr Hybrids and Assams is advisable. I think not, as t results of an experiment in this direction were not encoura ing. The old framework is so sapped that it seems pow less to again throw out the tender leaf and live; better to select the leading and stoutest suckers and reform t bush on these, sawing away the old stem.

Having recently tried the Assam plan of cutting do young two-year old plants to six inches from the grou I hope to report results in time. The work was done June-July, when the sap of tea is decidedly down on t Nilgiris, it being the hibernating period of it. By tw year olds, I mean two years from putting out, or three ye from seed. Red spider, it may be noted, is always at worst in September, so that a June-July sweep-down puzz that interesting crustacean.

(Sd.) THOS. BROWN.

GLENDALE, COONOOR.

NOTES.

Cost and Price. It is said that the cost of the T produced by the new Dimbula T Company works out 4½*d.* per lb., and that the average s price during the year was 8½*d.*

Low Cost. The Manager of the new Dimbu Company in Ceylon states that t actual cost of the Company's tea during the past seas was 3·89*d.* per lb. for Colombo. This shows what *can* done.

The British Tea Duty. A Committee, consisting of Mess Rutherford, Bois, H. Anderson a Martin Leake, has been appointed on behalf of Ceylon discuss this matter with representatives of the Indian T industry.

The Java Cinchona Factory. The terms upon which the Ja factory works up planters' cincho bark are a commission of 7 flori per kilogramme (about 4*d.* per oz.) The proceeds of t quinine go to the planter.

North Travancore. Some of the Companies at wo in North Travancore are turni their attention to Coffee and Cardamoms, as well as T It is reported that a total area of over 4,600 acres will opened and planted in 1899, and of this not less than 2,0 acres is to be under coffee and cardamoms.

Planting in Costa Rica. Mr. Huntley Thring has a hi opinion of the prospects of cof and cacao in this, about the best-governed and richest Central American States. He considers that young m of the right stamp, with £2,000 to £3,000 of capital, goi out there now would stand "to make a fortune," which is well nigh impossible to do in India or Ceylon now.

Indian Gardening. Our enterprising Calcutta conte porary has now included "T Amateur's Domain" in its pages. It also gives illust tions, to point a very interesting paper "About Papa

Trees." The last number also contains some interesting remarks by the Hon. Mr. J. Buckingham on the Florida Velvet Bean in Assam. Mr. Buckingham does not seem to think very much of this bean as a vegetable.

The Tea pest in Ceylon. Mr. Willis, of the Peradeniya Gardens, does not think the disease will be serious if planters only take measures against it as soon as they notice an outbreak of it on their estates. If they neglect to do so, no one can answer for the consequence. Mr. Willis is intending to make a tour through some of the planting districts shortly, to notice the extent of the disease on the tea.

New Markets. Germany is being opened out by Ceylon, and it is now observed by a Ceylon contemporary that there seems little doubt that Germany and also Russia are much more promising fields than the United States of America, and the proper policy, therefore, to pursue seems to be to "mark time" in the States, and direct all energies towards pushing tea in Germany and Russia.

Scarcity of Tea anticipated! *Apropos* of the campaign of Ceylon Teas in Russia and elsewhere, Mr. Stanton, of Messrs. Gow, Wilson, and Stanton, is reported to have expressed his opinion that, if the new markets now being captured are secured—and he did not doubt they would be secured—*we are certain to be short of tea.* Coming from such a quarter, this statement should be very comforting to the owners of tea property.

A Model Director. At the last general meeting of the Indian and Ceylon Tea Trust Co., Mr. Keith F. Arbuthnot, the Chairman, speaking on the report, which was of a very unsatisfactory character, stated that the Directors and their family connections were by far the largest shareholders, and that they had not parted with any of their holding. "Indeed," said the Chairman in a burst of confidence, giving the position away altogether, "*we couldn't if we wished to.*"

Calcutta Tea Sales. The sales on 11th instant were about the best of the season, all the 29,000 packages offered being sold. Competition generally was brisk, the market remaining steady, without material change in prices. Dooars teas elicited strong competition. Darjeeling sold well, as also a few of the better Assam marks. Active demand existed for outside markets, and Bombay buyers were keen competitors for wiry pekoes. The average price realised at the sales of 3rd inst. was 5 as. 11 pies, an improvement of 3 pies.

Tea Prospects in Ceylon. Mr. Joseph Fraser, who has had a round of "visiting" since his return from his brief holiday trip, is well pleased on the whole with what he has seen in the different districts. Of course, says the *Ceylon Observer*, the prolonged drought during the south-west monsoon months told against estimates; but, altogether, the present prospect is satisfactory. As regards the making of "fine teas," Mr. Fraser reminds us there may be too much of a good thing—that if everybody takes to making fine teas, the price thereof must, of course, fall; but with our many lowcountry places, there ought always to be abundance of medium and cheap teas.

The Agricultural Chemist in Ceylon. The following table of Mr. M. Kelway Bamber's fees will probably interest many of our readers :—

1.	Reporting and advising on manufacture and analysing the leaf, etc., made tea	R100
2.	Advising on manufacture, etc., without analysis	R50
3.	Analysis of soil on sample	R50
	Do. three samples	R100
4.	Analysis of compound artificial manures	R30
5.	Do. crushed bones or oil cakes	R15
6.	Do. lime or limestone	R10
7.	Do. water	R30
8.	Recommendations as to manuring based on analysis furnished by applicant	R5

London Tea Market. In their telegram to Colombo, dated 10th instant, Messrs. Gow, Wilson and Stanton reported that the London Tea market was generally unchanged, but Good Liquoring Pekoes were easier quotations—fair liquoring Ceylon Pekoe Souchong 6½*d.*, average 8½*d.*—both unchanged. Reuter reported the same day :—Tone of Ceylon Tea.—Common to medium kinds, good demand at fully previous rates. Fair Pekoe Souchong he quoted at 5½*d.* (same as last week) and the average 8⅝*d.* (⅛*d.* up). 18,000 packages of tea were offered for sale, of which 17,000 sold. Of Indian Teas 50,000 packages were offered and 46,000 sold, the average being 8½*d.* (an advance of ⅛*d.*)

An Entomologist for Ceylon. The Ceylon Budget for 1899 provides, at the instance of the Planters' Association, for a salary of Rs 5,000 a year, with a house at Peradeniya, for an Entomologist. The Governor states in his official "message," that "it is not contemplate that the very suitable gentlemand whom it is proposed te appoint will permanently assume duties before the middlo of September." Mr. E. E. Green, at present *Honorary* Entomologist to the Government of Ceylon, is the gentleman referred to. His appointment will, no doubt, be widely approved in Southern India, as he has always manifested readiness to assist planters in these parts as well as those of Ceylon. In particular, the subject of the importation of lady-birds for the extermination of scale pests has received and is still occupying his attention. This is a subject in which Southern India is greatly interested.

The Currency Question. At a meeting of the Committee of the Indian Tea Association; London, held on Tuesday, 25th October, it was decided that Messrs. D. Cruickshank and J. N. Stuart should be asked to prepare a further statement to be sent in to the Currency Committee in time for their first meeting on the 4th inst., and dealing with such points in the evidence already recorded, as well as others, as may appear to them to be desirable. The Planters' Association of Ceylon has resolved :—"That a hearty vote of thanks be conveyed to Mr. T. N. Christie for his able advocacy of the producers' interests before the Currency Committee, which this Committee consideers could not have been more convincingly argued on their behalf; (ii) that Mr. Wm. Martin Leake be thanked for the ready assistance he gave and for his

strenuous efforts to place the producer's position before the public."

Cinchona in the United States. Cinchona cultivation in the United States has apparently come to nought, says the *Madras Mail.* In an American official report it is stated that the value and demand for quinine were strong incentives to home production, and the cinchonas which furnish the drug were raised and distributed for cultivation, mostly in California and Florida. But in no instance was success obtained; and it is further remarked that cinchona bark is so largely furnished by plantations in the East Indies, and so cheaply, that West India growers have abandoned the culture of the trees. The eucalyptus tree has also not proved a success, except in California, though there was at one time a great demand for plants owing to the reports from Australia that plantations tended to reduce fevers in malarial tracts. It is now stated that no special merit, either in hardness or in utilisable economic products, has been found in any of the 40 species experimented with, so that their further propagation was abandoned several years ago.

Cinchona in Ceylon. A rise in prices of Cinchona, and European complications that have suggested thoughts of a possible further rise, have made old Cinchona planters reflect whether the time has not come for giving renewed attention to this bark. It is interesting to note that one of them remarks of the "old days" of Cinchona in Ceylon. As a matter of fact he says—and he lays claim to a good deal of experience—he seldom saw good *hybrids* or succirubra from *good seed* die on boundaries, or in proper soil in Uva. Young fields got wet feet and went out of simply galloping consumption in the most pathetic manner in no time, but with quinine at the *old prices* they *paid* to grow even as thick as your arm. He was long ago firmly convinced that the wild rush for seed at *any* price led much that was bad and immature to be gathered and sold. In fact, he sowed deliberately what he considered immature seed, *i.e.*, gathered from a too young tree in one of the nursery beds, and at six inches high the plants, though healthy enough, had the peculiar spindly look seen so often among subsequent failures. He adds that it has been proved that Ceylon can grow good Cinchona. Good seed is necessary, however, and this must be planted in a suitable soil.

Colombo Tea Sales. At the sale of Tea at Colombo on 9th instant about 5,761 pkgs.

COFFEE SHADE TREE.

Sun-dried Erythrina Lithosperma loppings, &c., contain per ton:—

61·50 lbs. Nitrogen.
57·38 „ Potash.
14·92 „ Lime.
13·68 „ Phosphoric Acid.

Seed cured under Messrs. Sutton and Sons' advice.

Orders should be booked early for the 1898-1899 crop of seed from the parent trees of above analysis at Rs.6 per pound containing about 2,000 seeds. *Germination guaranteed.*

Only thornless variety extant, and is not procurable anywhere save from the

MANAGER, ARIENKOW ESTATE,
Shencottah.

=476,744 lb. were offered, of which about 4,466 pl
=378,881 lb. were sold. The leaf teas again met v
keen competition and realized full rates. Medium Brok
were not in such strong demand, and closed a trifle eas
Fine teas sold at almost previous rates. The finest tea
the sale were: High Forest, Lynsted, and Glasgow—
a small break from New Galway. Amongst low-gro
teas some of the best were: Arapolakande, Polataga
Freds Rube, and Eila. By the way, the *Times of Ce*
gives the following statistics to show the growth of th
sales:—

		Offered. lb.	Sold. lb.
1897	...	... 29,516,534	22,999,956
1898	...	... 31,177,037	25,098,132

These figures have a special interest in view of attem
that have lately been made to show that sales *in Calcu*
do not compare favourably, in point of price, with th
made in London. Colombo, which works under somew
similar general conditions to those that effect Calcu
would at least appear to have established its utility a
selling market.

Ceylon Tea Estimates. At a meeting held on 11th insta
the Planters' Association of Cey
resolved:—"That an official estimate of the Tea Crop
Ceylon be compiled by the Association from the
January to 31st December, 1899. (2) That District Asso
ations be asked to compile such estimates for their
tricts, and furnish them to the Secretary, Planters' Asso
ation of Ceylon, by the 30th November, or as soon the
after as possible. (3) That district estimators be reques
to obtain their estimates from acreages as far as possib
the statistics received to be considered confidential, a
not to be published by the estimators, and the total o
trict acreages only to be given. Such returns should in t
opinion of the Committee be:—

(*a*) Total acreage in Tea.
(*b*) Acreage in bearing.
(*c*) Total crop.

(4) That forms be issued separately to each Super
tendent to be returned by him in a closed cov
Resolved:—"That the foregoing resolutions be forward
to the Secretaries of the various District Associations, w
a request that they will kindly take immediate steps
furnish the Committee with the desired data." There
nothing too inquisitorial about the procedure, and
cannot but think that the example should be followed
both Tea and Coffee Planters in Southern India.

Indian Tea for India. Commenting on our recent
marks anent the need of develo
ment of Indian demand for tea, the *Indian Plante*
Gazette observes that while agreeing with much that
say, it "must point out that the Indian Tea Supply Compan
Limited, which was brought into existence for the purpo
of selling Indian tea to the poorer classes of this count
in small packets, has so far failed to achieve the object
view. Evidently, the average native of India has not y
been educated to the point of taking his morning cup
tea. In the large towns it is a familiar sight to see t
itinerant tea-vendor going his round with a large tin c
filled with a decoction which passes for tea, and ev
small 'tea shops' have sprung up where the *habituè* tak

his morning cup. But outside the Presidency towns *chah* is practically an unknown quantity." This is all true, but the non-success of the Company mentioned does not affect our arguments. It is not a local "Lipton, Limited," that is wanted, but a local "Lipton." The individual element is more powerful than the joint-stock for such work as we have in view. Our contemporary acknowledges that there is a very large field in this country for Indian tea, and suggests that "a syndicate of natives, who would buy up large quantities of the lowest grades of dust and leaf, and establish agencies in all the towns and important villages for the sale of this cheap tea, would soon be able to develop the taste for tea among the people." "Of course," it adds, "the stuff would have to be sold in pice packets." We by no means agree with the last remark, but we certainly think that small capitalists might make a good thing out of pushing tea in India.

GENERAL ARTICLES.

THE U.P.A.S.I. SECTION.

[Under the Control of the Secretary, U.P.A.S.I.]

Mr. E. E. Green, Honorary Entomologist to the Government of Ceylon, has kindly permitted publication of the result, so far, of his experiment in regard to the introduction of Ladybirds from the Cape. It appears that the experimental consignment of the "Ladybird" beetle—*Exochomus nigromaculatus*—from the Cape of Good Hope duly arrived. At the time of despatch there seemed to be some difficulty in arranging for the transport of a Wardian case, so the beetles were packed in moss in a wooden box, together with an ample supply of food, and despatched direct by *letter post!* They reached Mr. Green in about four weeks' time, and he reports:—"On opening the case, the moss was found to be thickly strewn with the dead bodies of the beetles. But a careful search resulted in the discovery of five living beetles and four young larvæ (evidently born on the voyage). These were at once transferred to the breeding jars and supplied with local scale insects, upon which they commenced to feed readily. Three of the beetles and two larvæ survived the journey only by a few hours. The others are still alive and healthy, and the larvæ have completed their transformations, so that I have now four adult living beetles. I fear that this number is too small to hope to raise therefrom a fresh stock. It is even uncertain whether the two sexes are represented. But I consider the result of this experiment to be most encouraging, as proving the possibility of obtaining living beetles without the expense of sending a special commissioner for their collection and transport."

Mr. Green fed the beetles upon "Green bug" (*Lecanium viride*) and *Pulvinaria psidii* and said:—"They seem to prefer the large egg masses of the latter insect: but they also wipe out numbers of the young larvæ of the green-bug, though they do not appear to tackle the older insects. I feel, however, sure that in the absence of other scale insects they would readily subsist entirely upon the Lecanium."

In a later letter, he reported that a few young larvæ had recently appeared in his breeding jars. These had undoubtedly been born since the arrival of the beetles from the Cape. He is in hopes of being able to rear these up and to obtain a third brood from them.

Inquiries concerning Ladybirds resulted in a counter-inquiry from the Cape concerning fruit pests. A letter on this subject was addressed to the Press, but the answers received are unsatisfactory, as while fruit in India is infested by maggots, no one appears to have identified the species to which the depredators belong. The Agricultural and Horticultural Society of India, for instance, report that Mango and Lichi crops suffer somewhat by being attacked by maggots, but the Secretary has not yet succeeded in capturing the mother-moth. It is to be hoped that this important matter will now receive the attention it deserves. General Morgan has kindly promised to collect and forward specimens of certain flies referred to in his letter published in the last issue of *Planting Opinion*. No doubt these will lead to their identification.

Apropos of this, readers will find in the present issue a reprint of a very useful Circular of the Royal Botanic Gardens, Ceylon (Series I., No. 7, 11th June, 1898). This gives instructions for collecting and sending specimens of plants and insects for report. To some inexperienced collectors this circular will convey interesting hints, and it is hoped that planters and others will kindly study it before despatching specimen ladybirds or "pests" to the U.P.A.S.I. or elsewhere. Correct classification can only be effected when specimens arrive "in good order and condition."

DAILY TELEGRAPHIC REPORTS.

	Nov. 11.	12.	14.	15.	16.	17.
London.						
Bar Silver ...	28	28 1/16	27 15/16	27 15/16	28	28
Bank Rate ...	4	4	4	4	4	4
Coffee—	(quiet)		(dull)			
Nilgiri, ave. (B) siz.	65	...	65	...	...	...
Mysoré „ (B) „	75	...	75	...	...	..
Wynaad „ (B) „	64	...	...	...	...	...
Middling Ceylon	103	...	103	...	...	...
New York.						
Coffee—Fair Rio ...	6 1/8	6 1/8	6 1/8	6 1/8	6 1/8	6 1/8
Futures, Feb.	5.19	5.19	5.26	5.23	5.20	5.23
Silver—Comml. Bars	61	61	60 3/4	60 3/4	61	61

COCOA DISEASE.

The Planters' Association of Ceylon has resolved to suggest to Government the advisability of having the following simple rules from Mr. Carruthers' report circulated in Tamil and Cinhalese for the information of Native cultivators of Cocoa:—

RULES.

Recent observations and experimen ts have proved that the canker in the bark spreads to the pods on the bark; also that the production of canker spores on the pods is extremely rapid, only a few days

R. VENKIAH BROS.,
PHOTOGRAPHIC ARTISTS, 161, MOUNT ROAD, MADRAS.
Tea Gardens, Bungalows, Horses, Groups and Portraiture on the Shortest Notice.
HIGH CLASS WORK ONLY AT THE LOWEST POSSIBLE RATES.
Distance no object.
AMATEURS' WORK UNDERTAKEN, AND ALL PHOTOGRAPHIC REQUISITES KEPT IN STOCK.
CHEAPEST HOUSE IN MADRAS.
[22-10-98—t.f.o.]

being necessary for large bodies to be formed, and therefore it is of the highest importance that every effort should be made to destroy all diseased pods.

BARK CANKER.

Cut all the diseased tissue and two inches round burn all portions so removed.

POD DISEASE.

Take off all pods with a trace of disease and burn them (the small pods of an inch or so in length are generally dried up before they are attacked by fungi).

In cases where burning is impossible bury the pods with as little disturbance as possible, and put a good layer of lime over them before covering them up.

COFFEE PLANTING IN TOUNGOO, UPPER BURMA.

THE *Ceylon Observer* of 11th inst. writes :—

We had an interesting call on Wednesday from Mr. James Petley, after long service in Burma, retired to plant coffee on one of the Karen Hill ranges in Upper Burma. Here Capt Petley secured 200 acres of fine forest-land at an elevation of 3,000 feet, the Karens agreeing through friendship to his having it, and the Government sanctioning the transfer. He got his first coffee seed in 1875, the son thought, from Ceylon; but it must have been from Mysore, since no leaf disease appeared on his plantation of 120 acres until last year. Had the seed been from Ceylon, the disease would have developed much earlier; but how or why it developed last year is a puzzle. For the plantation is quite isolated—no other coffee in Burma until Tavoy in the far South is reached, where Mr. Watson from Ceylon (supposed to be dead) pioneered. The Messrs. Petley got good coffee crops for 10 or 11 years and they did well, because they sold it all locally in Rangoon, prepared, ground and in tins—so combining the planter's, the merchant's and middleman's profits. They used one of Walker's pulpers. Now, however, the leaf fungus has wrought sad havoc, and Mr. Petley came to us for information as to planting Para rubber. We showed that it was impossible at 3,000 feet. He would require to find a piece of suitable land in the low country. We advised an experiment in cinchona—seed from Bengal—on the coffee plantation: also to see if cardamoms (for local sale) would not do in the jungle. Tea, Mr. Petley said, they could not touch; because the labourers (Karens) got nearly double the daily pay of coolies in Ceylon. He says there are great stretches of very fine land; but there is difficulty in getting any of it, as Government will do nothing for would-be purchasers; the owners being the Karens. Mr. Petley had been in England on furlough and is now on his way back to Burma.

CEYLON AND CONTINENTAL MARKETS.

THE following extracts from the proceedings of a meeting of the "Thirty Committee" (Ceylon) on 12th inst. should interest our readers :—

CEYLON TEA IN AMERICA.

Resolved :—"That Mr. Mackenzie be informed that the 'Thirty Committee' vote a sum of £10,000 for pushing and advertising Ceylon Tea in America and Canada during 1899. (2) That the sanction of the Governor in Executive Council be obtained to this appropriation."

CEYLON TEA IN RUSSIA.

"That the thanks of the committee be conveyed to Mr. T. N. Christie, and that his action be approved, also that a further sum of £500, if deemed necessary by Mr. Christie, be voted for the additional advertisements referred to."

CEYLON TEA IN GERMANY.

The report of Ceylon Tea in Germany by Messrs. John Hagenbeck & Co. was laid on the table.

Mr. John Hagenbeck addressed the committee and explained his views generally. Resolved:—"That a grant of £750 be given to Mr. John Hagenbeck for pushing and advertising Ceylon Tea in Ge many under the appropriation already sanctioned, (2) that the com mittee will be prepared to further grants in proportion of one-thir to two-thirds of amount expended on accounts and vouchers showin expenditure being submitted."

CEYLON TEA IN NORWAY AND SWEDEN.

Resolved :—"That a sum of £5 be granted for pushing an advertising Ceylon Tea in Norway through post cards as estimate through Mr. Starey, (2) that the sanction of the Governor in th Executive Council be obtained to this appropriation."

Resolved :—"That a box of Ceylon Tea made of Ceylon woods b presented to His Majesty King Oscar, on the occasion of his 70t Birthday, and that Mr. A. J. Austin Dickson be asked to arrange fo the presentation on behalf of the Committee. (2) That the sanctio of the Governor in Executive Council be obtained to an appropria tion of £25 in this connection."

TWO NEW EUCALYPTS.

WE (*Ceylon Observer*) have received from the author copy of his paper (with plates) on two well-known bu hitherto undescribed species of Eucalyptus. The author i Mr. R. T. Baker, F.L.S., Assistant Curator, Technologica Museum, Sydney. These are :—

E. Bridgesiana, sp. nov. "Apple," "Apple-topped Box," "Woolly butt," of New South Wales. "But-but" of Gippsland, Victoria "A tree of considerable size" (Woolls); "grows to a great height particularly in loamy soil" (J. Manns.) Bark whitish-grey, wrinkle or tessellated, short and brittle in the grain, not fibrous, almos exactly identical with the Box, *E. hemiphloia*, when freshly cu giving out an aroma similar to the ordinary oil obtained fro Eucalyptus leaves, extending almost to the ultimate branchlets.

Hab.—VICTORIA: Gippsland ("But But," "Apple-tree," "Apple tree Box," "White Box," *A. W. Howitt, F. G. S*). N. S. WALES Colombo* ("Apple-top Box," *W. Bäuerlen*); Albury ("Apple," *D Andrews*); Gerogery ("Woolly-butt," *J. Manns*); Rylstone ("Woolly butt," *R. T. B.*); Bathurst ("Bastard Box," *W. Woolls*).

TIMBER.—It is a fairly hard, whitish-brown timber, but it is onl good for indoor work, as it decays rapidly when exposed to the air o placed in the ground. It is not used where strength and durability are required; fairly good for fuel.

OIL.—(*a*) *Leaves.*—646 lb. of leaves with branchlets, distilled Feb 1898, gave 59 ounces of oil, or an average of ·571 per cent., a ver satisfactory result. The oil is a little red in colour, and a few preli minary tests indicate it to be a good oil.

EUCALYPTUS PALUDOSA, sp. nov.—(*E. Stuartiana* F.v.M., var *longifolia*, Benth., B.Fl. iii. p. 244). "Manna," "Yellow," "Ribbony," "Swamp," or "Flooded Gum."

A tree "not exceeding 80 feet in height" (Sir W. Macarthur), with a diameter 6 feet from the ground 1ft. 6in. to 2 feet. In the young state up to a trunk of 5 to 6 inches it is very similar to *E. viminalis* Labill. Bark brown at the butt, bluish-white on the trunk and main branches, and yellow on the smaller branches and limbs decorticating into long ribbons of 30 feet or more suspended from the forks and trunks of the trees.

Hab.—Monga (Braidwood, *W. Bäuerlen*); Delegate (Bombala *W. Bäuerlen*); Wingecarribee (*W. Woolls*); Hill Top (*J. H. Maiden*) Barber's Creek (*H. Rumsey*).

TIMBER.—The timber is much more difficult to season than that o *E. Gunnii*, Hook., and is also specifically heavier. It is a close grained, hard timber of a light reddish colour, and I should conside it a much more durable timber than *E. Gunnii* or *E. viminalis*. Si W. Macarthur states that it is "said to be good." Dr. Woolls was o opinion that it is not suitable for any purpose, but Mr. H. Rumsey of Barber's Creek, informs me that sound logs will last 30 years i the ground. My own opinion is that if well seasoned it is a good sound, hard, durable timber, and useful for many purposes.

OIL.—The leaves are not rich in essential oil, as 394 lb. of leave with terminal branchlets, distilled June, 1898, gave 15 oz., or ·243% It is slightly red in colour and is probably (from preliminary tests not a good oil, and as the yield is not good it could not profitably b extracted.

MILLIE & REDMOND, late P. THOMPSON & CO., *Ootacamund, Engineers and Contractors.*

TEA IN RUSSIA.

At a meeting of the Tea and Produce Committee in London on 17th ult., one member, knowing Russia well, glanced at the list of papers in which Ceylon tea is being advertised in the Czar's dominions, and very promptly said that those in Siberia, of which there were a good many, were useless, and that the money being so expended was practically lost. A leading broker confirmed this, and said he was decidedly of the opinion that present efforts, at any rate, should be confined to Russia proper. He based his remarks on the proximity of China, and the enormous distance tea, to supply any business which might arise, would have to travel. The Secretary read the letter from Mr. Christie, in which it was stated that it was desirable that firms shipping tea to Russia and others interested in the Russian trade should be apprised of the fact of the advertising, and be informed of the papers being used. The same broker said he knew of all the firms in London who were sending samples to Russia, and on being supplied with type-written copies of the list of papers, he would send them round. Fiscal difficulties at the Russian Frontier were mentioned, and Mr. Stopford Sackville gave some useful information as to the best lines to be adopted and people to be approached. He spoke of Mr. Austin Lee, of the Embassy, Paris, who is Commercial Attaché for the whole of Europe.

A DISGRACEFUL INTERFERNCE WITH TRADE.

The London Correspondent of the *Times of Ceylon* says:—

Referring to the advertisements now being inserted in Russian papers, I will make a suggestion which has perhaps already been acted upon. In a new campaign such as is being now commenced, the great object is to catch the eye, and consequently the attention, of the Czar's subjects. There is likely to be a good deal of poor printing in 46 Russian papers. A perfectly similar electro inserted in each, and all of the papers (or those which will accept electros) would be very effective in securing the notice aimed at, and if this has not been already arranged, the "Thirty Committee" will be well advised to see to its being carried out.

T. R. TAWKER & SONS,

DIAMOND MERCHANTS, JEWELLERS AND SILVERSMITHS,

MOUNT ROAD, MADRAS.

To approved Customers in the Mofussil or others furnishing a suitable reference, we are always willing to send a selection of goods on approval. Our Show Rooms on the Mount Road contain the finest assortment of Diamond, Gold, and Silver Jewellery, and Electro-plate, while our Workshops turn out the best work in Southern India.

Catalogues free on application.

[w. 19-11-98—13-5-99.]

2

It is time that some active steps were taken to ensure fair treatment at, and smoother grooves for, the entry of our tea through the Russian Customs. I heard of a case this week of £4,000 worth of repacked Ceylon tea being refused at the Russian Frontier, and it is back again in a London warehouse. The owner lost £1,000 by this action of the authorities, which was based upon some trivial error.

TEA COMPANIES.

Eastern Produce and Estates Co. pays 2½ per cent. interim dividend on ordinary shares for the half-year.

Nuwara Eliya Estates Co. pays 3 per cent. interim dividend on ordinary shares for the half-year.

Kintyre Tea Co. declares a dividend of 5 per cent. The average yield of tea in bearing was 519lb. In reply to questions, the Chairman stated at the meeting of shareholders that the price of the Kintyre tea to Australia was 10·83*d.*, the net price being 8·67*d.*, while the net price realised in London was 6·18*d.* He went to Kintyre to ascertain whether there was a fair division of the two classes of tea. The tea-maker stated that they were the same, but Mr. Bell, the manager, was of opinion that the teas sent to Australia were rather better. The prices in Australia were very good—much better than in England.

Indian and Ceylon Tea Trust Co.—The Directors, in presenting the first annual report and accounts, made up to 30th June, 1898, regret that the period elapsed since the formation of this Company has been an unsatisfactory one for the Tea industry generally. The chief causes of depression were the rise in the exchange and the fall in the price of tea, but the Directors now look forward to a general improvement in the conditions. The accounts show that the total income earned to 30th June, 1898, amounted to £3,061 4*s.* 10*d.*, and after paying interest and the expenses of carrying on the Trust, a net balance remains of £2,189 1*s.* 8*d.* No dividend.

Carolina Tea Company.—The report states that the actual tea crop from the Company's properties was 939,491 lb., as against an outturn for the previous season of 893,288 lb., exclusive of Bellangalla estate (sold in 1896-97, and which produced 36,778 lb. tea in that season). The cost of the tea, free on board Colombo, was 5·10*d.* per lb. compared with 4·88*d.* per lb. for the previous season, the extra cost being due entirely to the advance in exchange. The average gross sale price in London was 8·02*d.* as against 8·26*d.* in 1896-97. In addition to the tea crop, 441 cwt. of cocoa and 307 bushels of coffee were obtained, as compared with 450 cwt. and 413 bushels in the previous season. The reduction of profit shown by the accounts from the earnings of last and previous years was caused mainly by the considerable advance in rates, both of exchange and freight during the season, and which entailed an extra cost of working equal to nearly 3½ per cent. on the capital of the Company, while the average selling price of the tea was about ¼*d.* per lb., below that of the previous year's crops. Tea in full bearing is 1,560 acres (yielding 480 lb. per acre), in partial 556 acres; not yet bearing, 312 acres; cocoa and coffee, &c., is 149=2,577 total acreage. To reserve is added £1,200, bringing the reserve total up to £7,200. The Directors express their entire satisfaction with the working of the staff in the Company's employ. The Company for 1893 paid 11¼ per cent., for the years 1894-96, 11 per cent. each year; an interim dividend last April of 4 per cent. per annum. Final for the year not yet declared.

Vagan Tea Compaay proposes to employ money in searching for and working plumbago.

Scottish Trust and Loan Company of Ceylon, Limited.—Capital, £125,000; First Issue (fully subscribed), £75,000; of which paid up, £45,000; Reserve Fund, £10,000. The report states:—The past season has not been favourable for the flushing of Tea; the estimated yield has nevertheless been realised, and the crop has averaged about 407 lb. per acre. The substantial rise in exchange, the fall in the price of Tea, and a reduced Coffee crop are answerable for the decreased returns as compared with the two previous years. The Company's Estates now have 1,489 acres of Tea in bearing, 102 acres in partial bearing, and 364 acres of young Tea which is coming on well. The remaining Coffee land is being gradually planted up with Tea. The re-arrangement of the capital of the Company referred to in last report was, during the financial year just closed, duly carried

out under the sanction of the Court. The shares are now of a denomination of £5 each, with £3 paid. The reduction of the liability for uncalled capital to £2 per share, in the opinion of the Directors, materially enhances their marketable value. The balance at the credit of Profit and Loss Account is £6,012-18-9, and the Directors propese to pay a dividend of 5 per cent. per annum free of income tax £2,250, of which two and-a-half per cent. was paid as an interim dividend at Whitsunday, 1898, and a bonus of 5 per cent. free of income tax £2,250, making £4,500, thus leaving £1,512-18-9 to be carried forward to next account.

THE PRUNING OF TEA BUSHES IN SOUTH INDIA.

ELSEWHERE we give the comments of an experienced planter on "Tea Pruning for the Nilgiris." Just as the proof of this reached us last week, we opened the *Planter* and found therein an article by a correspondent on "The Pruning of Tea Bushes in South India." It may interest our readers to compare the two, so we give the following copious extracts from the Calcutta paper:—

I have come to the conclusion that the young tea plant should not be allowed to rise above 3′ in height before topping, as no corresponding advantage accrues by permitting it to exceed this standard; then when the bushes have become shrubby, they should be cut across, at from 18″ to 20″, the growth thus resulting being unchecked, except in the case of fully developed shoots, rising above that level, which may be carefully tipped by coolies furnished with measuring sticks of the requisite length.

At this stage it is of the greatest advantage that the growth of the young plant should be as much unchecked as possible, the object in view being to get the bush into shape, more than that of showing an early yield of leaf.

It is also a desideratum that the lateral branches should be permitted to attain the height of the centre of the bush, prior to the sides being touched with the knife or plucked.

As regards the height at which such a plucking may be performed, it is impracticable to lay down any absolute rule, so much depending on the vigour of the bushes and on climatic conditions. Shoots left too long are inclined to become "*Banji*" and to remain stunted for some time; it is obvious, therefore, that they should be tipped before this occurs, but on the other hand, the more vigorously these shoots develop, the finer the ultimate yield: practically, it will be found wisest to tip the shoot at 30″ or rather less, and to pluck the leaf about that height from time to time.

Such treatment should insure the bushes having, by the time they are 2½ years old, a supply of vigorous shoots of young red wood which have risen from the original 20″ level topping. I think that heavy pruning of tea should be avoided as much as possible, except where such drastic measures are imperative, and in order to avoid such treatment of the young plants it is necessary to modify the system obtaining, of allowing bushes to grow for over three years before being topped: it may be taken as an axiom that the younger the tea, the less the check it experiences from a first pruning.

At the end of the fifth year, a comparison of the result of critical pruning at 12 months old, and of the same operation at three to four years, will demonstrate everything in favour of the former rather than of the latter system.

For the foregoing reasons it should be the object of the planter to postpone heavy pruning as much as possible, an appreciable advantage being gained by an early topping in the young wood; the postponement of the work till the third or succeeding year, when the stem has thickened, being attended with the risk of the formation of a "snag" in the bush which may subsequently set up "dry rot," and which every succeeding imprudent use the knife may accentuate, with enhanced decay in the branches.

With systematic pruning, between one and four years old, a well-shaped and formed bush will be produced, furnished with vigorous lateral branches, which with judicious keeping would continue furnishing fine shoots, and in the fifth year enjoy a more favourable position prospectively than a bush which at a similar age possessed the defeat of "snags," "dry rot," and its attendant dangers, accruing from a topping and pruning the preceding year.

These views are applicable to young properties, but with old estates more drastic measures are called for, especially where the bushes are suffering from the effects of continuous heavy pruning to maintain the yield.

I consider that a great deal may be achieved by the careful moval of diseased wood as well as by a rest from plucking, both to prove the bush and to facilitate its return to good plucking conditi With this object one great advantage is secured by merely tippi the centre of the bushes, allowing the outside shoots to mature i strong brown wood, subsequently operating on these and reduc to the pruning level with the knife.

By following this procedure the renovation of old tea has b accomplished, and further maintained by the retention merely of t thickest of the brown wood and removal of the whippy shoots whi only absorb the sap, and furnish very little leaf in return. I ha no doubt but that leaf formed on the stout healthy brown wood superior in quality to that grown on a sickly shoot; a considerati of the functions of the leaf and its power of elaborating sap w explain my meaning.

Under certain contingencies, I advocate regular, and, if necessa severe pruning, supported with manure, to bring neglected bush into order, every precaution being taken to avoid indiscrimina slashing, and to have careful manipulation and scientific use of t knife. In carrying out such work, great damage may result fr exposure of the primaries, the blistering of the bark, and destructi of the combium, followed by dry rot, unless the season is carefu selected.

The condition of the bush which from many years of pruning a sparse manuring has degenerated into a collection of snags, a with, as a result, a retarded and uncertain flow of sap, offers sco for what I believe to be the most effective means of resuscitating i powers; and under such circumstances, "collar pruning," proper conducted, has proved most successful in Assam and in Ceylon.

As regards "collar" pruning, this correspondent remarks th there seems to be no doubt that the section should be made about couple of inches below the surface of the ground, and that the woun should be immediately earthed over.

STATISTICS OF CINCHONA CULTIVATION.

THE Officiating Director-General of Statistics gives, under da 1st inst., the following two tables as presenting the facts concernin cinchona cultivation, the first in detail for the two years 1896-97 an 1897-98, and the second in abstract for the twelve years endin 1897-98:—

AREA.

At the end of the official year 1897-98 there were 4,346 acres land under cinchona cultivation, of which nearly 68 per cent. w situated in Southern India, the remainder (about 32 per cent.) bein in Bengal. The area in Bengal, comprising 1,394 acres, lies in an near Darjeeling. Most of the area in Southern India is in th Nilgiris and Malabar, there being 1,708 acres in the Nilgiris; 57 in Malabar, 361 acres in Travancore, 303 acres in Mysore, an 8 in Coorg.

In Bengal the land under cinchona was in the main planted an is maintained by Government, the plantations of the State coverin 1,384 acres. In the Madras Presidency, on the other hand, th industry has lain to much the largest extent in private hands, th State plantations covering under 800 acres.

During the twelve years ending with 1897-98 the area unde cinchona has fallen from 14,491 acres to 4,346 acres. There ha been a substantial decline in Bengal as well as in Madras, and i Coorg the cultivation has been almost entirely abandoned.

The number of plants in permanent plantations has fallen in th same period from 28⅓ millions to a little under 5 millions. In 1897-9 a little over 3½ millions were classed as mature and nearly 1 millions as immature plants.

The general reason for the decline is the fall in the price o quinine, which left but a small margin of profit in the productio of the bark for export. Last year, however, prices rose considerabl and the quantity exported was nearly ten times greater than 1896-97.

PRODUCTION OF BARK.

The quantity of bark collected fluctuates from year to year. Bu so far as the figures relate to Southern India, they have been great understated, being in every year, except the years 1895-96 and 18969 smaller than the quantities recorded as exported thence to cou tries out of India. Last year the quantity exported and purchase by Government from private plantations was more than 2¼ millio

pounds in excess of the recorded private production. The figures for Malabar, which relate to only a few plantations, are chiefly at fault, as there the export exceeded the recorded yield by more than 2 million pounds. In Bengal practically all the bark produced is manufactured by Government into febrifuge and sulphate of quinine and issued in that form to medical stores and hospitals, or sold to the public. The decrease in the production of bark in the Government plantations in Bengal is stated to be due to the fact that large quantities of bark were purchased from private growers, and it was considered advisable, under the circumstances, to harvest a smaller quantity of bark from the Government plantations in Sikkim than would otherwise have been the case.

BARK COLLECTED (LB.)

Years.	Madras.	Bengal.	Total.
1885-86	344,158	223,010	567,168
1886-87	750,478	255,631	1,006,109
1887-88	856,316	342,410	1,198,726
1888-89	1,140,302	445,100	1,585,402
1889-90	827,884	420,705	1,248,589
1890-91	1,656,872	416,272	2,073,144
1891-92	1,473,204	435,560	1,908,764
1892-93	2,065,177	459.232	2,524,409
1893-94	1,170,801	433,010	1,603,811
1894-95	1,449,947	577,682	2,027,629
1895-96	1,532,445	507,436	2,039,881
1896-97	774,284	717,222	1,491,506
1897-98	1,359,738	332,701	1,692,439
Average ...	1,192,431	428,152	1,620,583

EXPORTS (LB.)

Years.	Madras.	Bengal.	Total.
1885-86	849,742	7,298	857,040
1886-87	1,252,328	32,881	1,285,209
1887-88	1,397,919	51,394	1,449,313
1888-89	3,042,084	32,006	3,074,090
1889-90	1,854,632	...	1,854,632
1890-91	2,984,126	11,719	2,995,845
1891-92	2,692,251	1,608	2,693,859
1892-93	2,813,637	...	2,813,637
1893-94	1,665,647	...	1,665,647
1894-95	1,728,418	8,900	1,737,318
1895-96	939,938	...	939,938
1896-97	321,478	...	321,478
1897-98	3,056,769	...	3,056,769
Average ...	1,892,228	11,216	1,903,444

Of the bark collected in Bengal in 1897-98 more than nine-tenths (310,715 lb.) were collected in the Government plantations, and practically all was used for local manufacture. The Government cinchona factory produced during the year 10,148 lb. of quinine sulphate and 4,075 lb. of cinchona febrifuge.

COFFEE IN ASSAM.

THE following "Communicated" paper appears in the *I.P.G.*:—

Amongst the many auxiliaries proposed and discussed in planting journals from time to time, coffee would seem to offer itself as being well worthy of being placed in the front rank amongst the most promising by-products which have been brought forward as being likely to act efficiently as a stand-by to tea during a period of the latter's temporary depression. That coffee will grow and bear far heavier crops year after year, both in Upper Assam and Sylhet, has been well noted for years past in certain circles. It has been advised that coffee planting in Assam should be first carried out experimentally, and on no extensive scale, until success is placed beyond dispute. In South Sylhet and Assam we have known coffee bushes giving good average crops for the last 14 years. Those average crops would be called extraordinary crops in the coffee-growing districts of Southern India. From reliable information and personal knowledge those bushes still continue to bear heavily, and are in the best of health. This, we would think, would place coffee growing in the districts named far beyond the experimental stage. We must remember that 100 acres are a large average for a coffee garden in India and Ceylon, and this fact makes coffee so eminently suitable as a support to the larger staple. Coffee, as a by-product for the large tea companies of Assam, always appears to us ridiculous; if these companies are unable to stand by tea alone, then the latter industry in Assam is in a sickly way indeed. No, where coffee will come in is as a stand-by and support to private tea gardens, which, in fairly good times, can make headway, but which during a period of depression, if for any lengthened period, are bound to succumb as so many gardens of this type are succumbing at the present time. We know some of those gardens which have most suitable land unopened, which, if planted out in coffee a few years back, would most undoubtedly have prevented them going to the wall.

The want of elevation has been brought forward as an argument against the successful cultivation of coffee in Assam and its sub-districts, but we would ask our planting friends to bear in mind that although elevation is desirable—as a matter of fact absolutely essential—for the cultivation of the so-called Arabian variety in a pronounced tropical climate, it is by no means essential or even desirable in the climate of Assam or Sylhet. As far as the coffee shrub is concerned, the climate as it exists in those districts of Assam and its sub-districts, where the rainfall comes anything between 80 and 120in. is eminently suited for its successful cultivation. Hitherto we have been confining ourselves to the Arabian variety, but it ought not to be forgotten that there are other species well worthy of claiming our attention. Some hybrids we have now in cultivation which are not so delicate and particular as to the kind of soil in which they are planted. This is authoritatively stated to be the case with the Maragogipe variety, which grows to the size and of the same robust habit as the Liberian species with as big a berry, but of superior favour, and a heavy cropper. Then we have the Liberian species itself, which is essentially a low-level grower. The London market is against this coffee, but not so the American or Continental. The Straits Settlements plantations have gone a long way towards getting this coffee a bad name owing to the slovenly way it has been cured—or rather not cured at all—and put upon the market. In many cases the coffee arrived in a filthy, black state and covered with mould, which could not be expected to bring other than the very lowest prices. On the other hand we are assured that a well cured and properly graded Liberian coffee will bring from 45*s.* to 50*s.* per cwt. In that case a 50 acre block of well cultivated Liberian coffee, when we take its enormous yield into consideration, must pay most handsomely.

Another low-level West-African variety of the Arabia type is Coffee stenophylla. This variety combines all the qualities of the Coffee Liberica with those of Arabica, and at the present time by all accounts is systematically being put on the market as best "Mocha." Although we are perfectly well aware of a few starts which have been made in coffee growing in the South Sylhet District, this district can never become a large producer, and we would think all the better for those who have started, as there is less to fear from disease in a thinly populated district than a congested one; and we are inclined to think that this equally applies to the vegetable as to the animal kingdom. The land suitable for coffee cultivation in the South Sylhet district must be comparatively limited; still, as we have stated above, it does not require a large area of land to make a paying coffee garden as it does in tea. Blocks of land from 200 to 300 or 400 acres can be found which would produce two-thirds suitable for coffee growing, but in these days who would ever think of taking up such a block for tea cultivation? Again we would urge private gardens to make a strong effort if they have land suitable.

It has been asked time after time if any one could advance reasons why coffee would not prove a successful venture for South Sylhet. Every enquiry has been made from scientific men, as well as from practical coffee planters, not only in India, but in other coffee-growing countries, and we lay the results before our readers for their consideration. Judging from what has been stated, we would be inclined to think that the Assam or Sylhet coffee planter has a

great deal on his side and we cannot see that there is much against him; but it ought always to be borne in mind that the shrub will most likely require a slightly different treatment to what it requires in Southern India or Ceylon. But this, like all other things, is a knowledge only to be acquired by practice, observation and study. We may say in conclusion that South Sylhet grown coffee ranks in value with that grown in the Wynaad, and comes nearer in resemblance to the Mysore type than it does to any other.

THE U. P. A. S. I.

AS VIEWED FROM BOMBAY.

THE *Times of India* writes:—It is a pleasant custom, of five years' standing now, for the planters of Southern India to gather together once a year in Bangalore, and there discuss matters affecting the industry in which their capital is invested, and in the pursuit of which their lives are spent. Pleasant, we say advisedly, for Bangalore, with its elevation of 3,000 feet above sea level, is usually looking at its best in August, and chastened by the temperate monsoon, its climate, without much exaggeration, may almost warrant a local application of Tennyson's somewhat hackneyed line. Anyhow, the "sweet half English Nilgiri air" rises suggestively to one's thoughts. Moreover, the varied social functions that are just then in full swing help not a little to ameliorate the severe attitude of thought necessary for discussing such elusive matters as ladybirds, or such stonily impracticable subjects as roads and communications, or the currency, or scale pests, or coffee stealing, or the ravages of that cheerfully industrious parasite, the *Hemeleia vastatrix*. Not only, then, is the custom with which the name of the United Planters' Association of Southern India is identified a pleasant one, but it is a profitable one, inasmuch as the Association has given to the views and wants of planters a publicity, coherence, and solidarity certainly not possessed in years gone by. The meeting, which took place in August last, extended over four days, and the proceedings, as is usual, we believe, have now been issued in permanent form. Delegates from Central Travancore, Coorg, Kanan Devan, Lower Pulneys, Nelliampathies, Nilgiris, North and South Mysore, the Shevaroys, Travancore, and Wynaad were all present, some nineteen planters in all, and in addition to these Mr. J. Cameron, the well-known Superintendent of the Mysore Government Gardens, contributed some highly-interesting information regarding seed fertilisation, hybridisation, and the fertility of coffee generally. The everlasting currency topic bulked largely in the discussions, but apart from its undeniable importance, currency is a dismal bore, whereas a few facts and opinions about ladybirds and their relations to coffee—except, perhaps, to an overworked entomologist—appeal at once to the imagination. Because, as Mr. H. O. Newport, a planter of the Lower Pulneys, cheerily observes, *Rhizobius ventralis* is "a very good sort," and so too is *Orcus Australasia*, and if these are not good enough, there is *Cryptolœmus montrouzerii* to console anybody who feels a little disappointed. And Mr. Newport, though not a professed entomologist, ought to know, for he has been all the way on a special mission to the Agricultural Department of Queensland to find out. It would appear that while snakes and tigers and mosquitoes and scorpions are scattered over India, with quite a prodigal luxuriance, the ladybird is a comparative rarity—or at least that that species of *coccinellidæ* which feeds on "scale pest" is not easily forthcoming. This is all the more annoying, because it is precisely this species our planters want to get hold of. And as we have to import machinery, and packs of hounds, and trout ova, and British soldiers, so it seems the planters are compelled to import ladybirds, that is, when they can so manage to do. For, apparently, it is a great deal easier to get a shipload of Maxim guns into India than one small case of *Cryptolœmus montrouzerii*. Then, too, the ladybird, like our own domestic poultry, lays but few eggs, and as might be expected from their unconscionable names "they have many natural enemies." Mr. R. Gompertz, a well-known planter of the Shevaroys, suggested as an alternative the importation of eggs, but, apparently, a cargo of "great auks" would be more within the bounds of possibility than the microscopic ova of the ladybird. In the first place it seems it would take a year or eighteen months of study and work before eggs could be procured at all. So deposes Mr. Newport. Then "the eggs are so minute that you could not find them." Here we seem confronted with a quite insuperable obstacle, but Mr. Newport has an entomological kind of flanking movement in serve. "You would have," says he, "to collect the ladybirds, them on plants with scale pests on them, and let them go through whole course of their lives." There is obviously no telling wh long-lived ladybird might be up to, and Mr. Newport certainly not illuminate this part of the subject. "Then," he continues, " would have to examine minutely the leaves of the plants themselve collect the eggs." That sounds simple enough and encouragin far as it goes, but Mr. Newport's crushing conclusion is "that fin you would have to collect such an enormous quantity of eggs at time that the possibility of the scheme seems out of the questi And what about the imported article—the ladybird in bulk s speak? Mr. Newport, it seems, brought out his ladybirds f Queensland in ice, and he dolefully admits "the insects looked they ought to come out alive, but I could get no sign of life ou them." And this after capturing no fewer than 4,300 odd. almost tragic to read how Mr. Newport, when he got back to In tried to "resurrect" his importations. At last he "left them in the sun, but they only dried and were very evidently dead." much for these unfortunate *coccinellidæ*. It may be that better will wait on future efforts. In the course of the discussion on disease, Mr. Graham Anderson mentioned an extraordinary phe menon in connection with the pepper vine on some of the clearin In planting pepper, straight trees up which to train the vines desirable. The *Myristica magnifolia* is just the kind of tree for purpose, and as it grows wild all over the forests in South Mys the planters naturally thought it just the thing for their purp But the tree has a funny peculiarity. It is extremely gregariou habit, and will only live in clusters in the fores. "Immediately began to thin them out," says Mr. Anderson, "the others supp ing the pepper began to die out too." Gregariousness in tr it may be pointed out, is not exactly an unknown phenomen Whether it be an evidence of "plant intelligence" may be ope argument, but anyhow in this case, at least, the nature of the frustrated the intention of man. Mr. Cameron's warning t unless coffee planters turn from the error of their ways—in agricultural sense, of course—the Nemesis of eventual sterility overtake the plantations, will, perhaps, frighten some of Southern Indian friends into crop rotation, cross fertilisation, all the rest of it. Not that these things are unknown, but it wo seem that more attention might be given to them than is now the c For the rest it may be said that whether the U. P. A. S. I. conc itself with the encashment of currency notes, or the making roads and communications, or the building of railways, or the sil question in regard to tea, or those other more interesting top here briefly glanced at, it may fairly claim to well fulfil its spe object, while being at the same time a useful addition to the rep sentative communities of the country."

OUR INSECT FRIENDS AND FOES.

AT the suggestion of the Secretary, U.P.A.S.I., reprint, for general information and reference, the conte of Circular No. 7, Series I., dated 11th June, 1898, issu by the Royal Botanic Gardens, Ceylon:—

INSTRUCTIONS FOR COLLECTING AND SENDING SPECIMENS OF PLANTS AND INSECTS FOR REPORT.

Large numbers of specimens of plants for identification, pla attacked by insect or fungus pests, and other specimens, are c stantly received by the staff of this department. Much labou often wasted over these for want of knowledge on the part of senders as to what should be sent, and how it should be packed, this Circular is issued with the object of giving a few instructi on these points.

1.—DIRECTIONS FOR PACKING AND TRANSMITTING INSECT PESTS FOR REPORT.

Packets, said to contain "Insects for Report," are frequen received by the Government Entomologist with the contents q unrecognizable.

The chief consideration is that the specimens should reach th destination in as fresh a condition as possible.

As a general rule this can be best ensured by putting them i a close-fitting box. In this way leaves, and the insects feed upon them, can be kept quite fresh for several days, or even a we But do not spoil the effect by punching air-holes in the lid of

box. Insects do not require much air, and the supply that is enclosed with them in all cases will be ample for their needs. The free admission of air will only result in the drying up of the leaves and the possible escape of the insects; or the specimens may be injured by the jagged edges of the tin where the holes have been punched. If the objects consist of blighted leaves, it is particularly important that they should arrive in perfectly fresh condition. When withered and dried up, many leaves, particularly those of the tea-plant, become quite black, and any peculiar spots or characteristic markings are obliterated or rendered indistinct. Leaves and shoots of plants will keep fresh a longer time if gathered early in the morning.

For small parcels, an ordinary tea sample box will answer the purpose as well as anything. For larger specimens, or a larger supply of them, an empty tobacco box, or small biscuit tin, will be found useful. If it should be necessary to send large pieces of stems or branches that cannot be conveniently packed in a tin box, they should be nailed up in a close case in such a manner as to prevent the possible escape of any of the insects or respread of the disease.

An ample supply of the material should always be sent, and this should include examples in as many different stages as can be found. It is not always possible to identify the insects locally; in such cases a duplicate set of specimens has to be forwarded to some specialist in Europe, where large collections and good zoological libraries are available for reference. It is also intended to make up a collection of economic insects for exhibition in the museum of the Pradeniya Gardens. It is therefore particularly requested that ample material of any insect pests, as they occur, may be sent in.

Care must be taken that the specimens shall not rattle about loosely within the package during transit, which would result in their being bruised or otherwise injured. This can be prevented by including a sufficient number of leaves and twigs to support them. The object extreme—the overcrowding and consequent crushing of the contents—should be equally avoided.

Carboard-boxes or empty match boxes are not recommended, as leaves and young shoots soon become dried up in them; but if they should be used, a separate label should be attached for the stamps and to bear the brunt of the postmark. Packages sometimes arrive completely crushed for want of precaution.

It should be remembered that a broken package, or one that permits the escape of any of the contents, is a source of considerable danger. A most serious pest or disease may be widely distributed by this means.

Careful notes should be made and sent with each parcel, giving:—

(1) Locality and elevation at which the pest occurs.
(2) Date of first appearance; particulars of progress.
(3) Nature and extent of the injury.

To prevent any possible confusion between packets arriving by the same post, the name and address of the sender should be written on a corner of the label.

In conclusion, stress should be laid upon the important points:—

(1) Send the specimens in as fresh a condition as possible.
(2) Do not make holes in the boxes for ventilation.
(3) Send an ample supply of material.
(4) Do not risk the spread of a perhaps dangerous pest by sending an insecure package.
(5) Send full and precise particulars of the disease.

E. Ernest Green,
Honorary Government Entomologist.

2.—SENDING PLANTS FOR IDENTIFICATION.

It is very difficult to recognize many of the specimens of plants sent for identification, as the most important parts—the flower and fruit—are omitted. The specimen should always include, if possible, flowers, fruits (ripe, or nearly so by preference), and a branch with both young and old leaves in the case of a tree or shrub, or the whole plant in the case of a herb. A small piece of the surface bark is also useful in the case of trees.

If the journey is longer than twelve hours, and always by preference, the specimens should be sent in a tin box, tightly closed, and the name of the sender should be written outside.

In the case of plants found growing wild in Ceylon, notes should be sent of the locality in which they were found and of any other points of interest. If the plants are from abroad, the country from which they came should be mentioned if known, as the labour of identification is lightened if this is known.

3.—SENDING FUNGUS PESTS FOR REPORT.

Specimens of plants with fungus pests upon them should be most carefully packed in tin boxes or tea lead to keep them fresh, and to prevent the disease being spread by means of the packages. They should be despatched as soon as gathered, and if the journey be long, other samples may be sent in alcohol (dilute whisky or arrack will do). Full notes should be sent of the time of appearance of the disease, its ravages, what parts it attacks, the causes to which its appearance is supposed to be due, the results of any preventive or curative measures tried, and so on.

If the pest attack the leaf or bud, send fresh specimens showing as many stages as possible, with the necessary explanatory notes; also send a few healthy specimens of the same variety of plant from the same neighbourhood if possible. If it attacks the stem, cut out diseased pieces in as many stages as possible, to whatever depth the fungus penetrates, and send also some healthy pieces.

(Sd.) JOHN C. WILLIS,
Director, Royal Botanic Gardens, (Ceylon.)

PRODUCE AND PLANTING.

Widening Markets for Tea.

As was pointed out in Messrs. Gow, Wilson's circular last week, the foreign markets for tea are widening. This is especially the case in regard to Ceylon teas, the shipments of which have increased from 11,911,213lb. for the first nine months in 1897 to 17,037,941lb. for the corrrsponding period this year. The most important progress has been made in the Australian, North American, and Russian markets, and considering the material increase in the exports of tea from this country during the period, it is pretty evident that the consumption abroad is becoming a more and more important factor in the tea trade. It has already, it is stated, caused a substantial reduction in the supply to this country, and it is the earnest desire of those who wish well to the tea industry that the tastes for both the Indian and Ceylon articles will continue to grow.

Tea Planters and Their Coolies.

Tea planters will appreciate the championship of the *Globe* in the matter of the lying reports so freely circulated about the way coolies on tea gardens are treated. "As in Ireland, so in India, 'patriots' of the political variety vehemently denounce," says the *Globe*, "any encouragement given by the Goverument to migration from congested districts to areas where additional labour is badly required. The native papers in Bengal teem with this spurious sentimentality; according to their showing, the migration of coolies to the tea gardens of Assam, Cachar, and Burmah should be instantly suppressed as a very bad form of slavery. Every planter is pictured as a Legree who treats his workpeople without the slightest regard to their rights as British subjects, paying them just as much as he pleases, and exacting from them almost unintermittent labour. So blind, too, is the white tyrant to his own interests that he makes no provision for medical attendance or medicine, with the result that his miserable chattels die off like flies. Other stories of an even blacker character affecting the coolies' wives and daughters are freely ventilated; in fine, every tea plantation is an Inferno into which whoso enters leaves hope behind. Of course, the truth is exactly the contrary; there may be abuses here and there, but unprejudiced natives who have personally visited the gardens bear witness that the coolies are immeasurably better off in every way than they were before they migrated."

Last Week's Tea Market.

The quantity imported of Indian teas being large, the market is liberally supplied with a good assortment, says the *Produce Markets Review*, referring to last week's tea sales. The improvement in the demand, however, keeps prices steady on the whole, the lower grades being especially firm. This is attributable to the comparatively limited supply of other low-priced teas; but, as the proportion of the imports of these kinds from India is large, there is no reason for any decided rise in values at present. The low prices in Calcutta have no doubt led to heavier exports of common kinds to other markets, but as large supplies of teas of this class, especially from the Sylhet and Cachar districts, will be forthcoming, there is not likely to be any material curtailment in the supply for some time. There has been a somewhat firmer tendency for the more desirable medium sorts, and, as these offer exceptional value, a considerable business has been transacted in them, and there is a probability of their being dearer rather than cheaper later on. The fine and finest descriptions met with a steady demand, but, as most of

those brought forward are of a lower quality than those offered a short time ago, prices have correspondingly declined; the few parcels of stand-out teas, however, have realised full rates. The supplies of Ceylon teas brought forward have been on a rather larger scale, but in no instance has there been any decline from last week's rates, and the bidding throughout the sales was particularly brisk, prices in some cases being slightly dearer. Pekoes from about 7½*d.* and upwards were decidedly stronger, but not materially higher, while medium broken teas were also in much demand at very firm rates. The kinds least affected have been the common descriptions, but no alteration in their values can be quoted.

A PLANTERS' PARADISE.

Puertorico is clearly a pleasant place for tropical agriculturists. The *Times* correspondent gives an interesting account of its possibilities, and the United States Government will make the most of them. The conditions for sugarcane cultivations are not unlike those found in Jamaica. The present production of sugar in the island is about 80,000 tons, and of this amount 60,000 tons are available for export. Under favourable circumstances, such as the admittance of the products of Puertorico duty free into the United States, the export of sugar could be easily increased to at least 200,000 tons, and the capital necessary to bring about this development in the planting industry would be very speedily forthcoming if the conditions to coffee cultivation offered a somewhat stronger attraction to the possessors of limited capital than sugar-cane planting. Fertile forest land suitable for the formation of Coffee plantations can be purchased at rates varying from £2 to £3 sterling an acre. The expense of cultivation may be taken at £7 to £8 sterling for each acre planted until the trees begin to yield a return in the fourth year. Puertorican coffee has always brought very high prices and does so to-day in spite of the over-production of the bean in Brazil and elsewhere. At present the total exports of coffee from the island amount to some 25,000 tons annually, and this quantity might easily be doubled, or even trebled, if capital was available for the extension of the industry and more attention was paid to the methods employed in the cultivation of the plantations—difficulties that should now be easy to overcome. Tobacco cultivation also offers very considerable scope for increased production. One of the most serious questions in connection with tropical agriculture must always be the supply of labourers available for work in the fields. If numbers are any criterion to judge from, Puertorico must be considered exceptionally favoured in this respect, the population of 900,000 giving a density of more than 240 to the square mile.

THE MANUFACTURE OF QUININE IN JAVA.

We referred in our issue of June 3 to the experiment entered upon in Java, where it was resolved to establish a quinine factory. Java produces about two-thirds of the world's supply of cinchona, and it has for years been regularly shipped to Holland, where it has been sold by public auction. The large quinine manufactories which are mostly situated in Germany supply themselves with the raw material in the Dutch market, and of late years the manufactures have combined to keep the prices at such a low level as to render the cinchona cultivation unprofitable, although the manufacturers of quinine have been earning larger dividends. To meet this combination it was resolved to establish a quinine factory in Java, and this has been done at Bandoeng, where the first Java quinine has been produced. This, the last consular report mentions, is described as of excellent quality, and equal in all respects to the best European brands. Some of the planters were tempted early last year by the rise of prices in Europe, consequent on the establishment of the factory at Bandoeng, to consign their cinchona to Europe rather than to their own factory; but more recently they have seen that this course must result in the destruction of their own factory, and now the latter is being well supported with the local raw material. Some large shipments of Bandoeng quinine have been made to London, and smaller ones to other parts of the world, and the future of Java quinine will depend on the result of these ventures. Last year the total production of cinchona in the island was over 8½ million lb. avoirdupois.—*H. & C. Mail.*

THE CULTIVATION OF TEA IN INDIA.

THE Director-General of Statistics has published the following paper on tea cultivation in India:—

AREA.

The area under tea in India at the end of 1897 extended over 493,710¾ acres, nearly two-thirds (62·7 per cent.) being in the va of the Brahmaputra and Surma, which contain as much as 31 acres, namely, 179,160 in Assam (the Brahmaputra valley) and 13 in Cachar and Sylhet (the Surma Valley). In extent of cultiva Bengal comes next, though the acreage is smaller than in eith the divisions of Assam, the area under tea being 128,067 acre 25·9 per cent. of the whole.

The cultivation of tea is, therefore, to the extent of nearly n tenths (88·8 per cent.) of the whole area, limited to the two Provi of Assam and Bengal.

The other tenth is divided between Northern and Southern In thus:—

	Acres.
Northern India—	
North-Western Provinces... ...	... 7,965
Punjab	... 9,970
Total	... 17,935
Southern India—	
Madras	... 6,335
Travancore and Cochin	... 30,076
Total	... 36,411

The principal localities in each Province where tea is grown these:—

	Acres.
In Assam.	
Surma Valley:	
Cachar	... 61,190
Sylhet	... 70,200
Brahmaputra Valley:	
Sibságar	... 70,368
Lakhimpur	... 55,560
Darrang	... 33,984
Nowgong	... 12,659
Kámtus	... 5,873
In Bengal.	
Darjeeling	... 55,822
Jalpaiguri	... 65,072
Chittagong	... 4,024¾
Lohárdaga and Hazáribágh ...	... 3,049
In the North-Western Provinces.	
Kumaun	... 3,159
Dehra Dún	... 4,806
In the Punjab.	
Kángra	... 9,970
In Southern India.	
Nilgiris	... 5,479
Travancore	... 30,009

There is a small area of 747 acres in Upper Burma, but in Province the leaf which is produced is not made into tea, b pickled to be eaten by the Burmans, and the area and produc may therefore be left out of account.

There are also a few small areas in Goalpara, the Nágá hills, the Khási and Jaintiá hills, in the Chittagong hill tracts, in Si Malabar and Cochin.

Tea cultivation in India has been mainly concentrated in t where a heavy rainfall and a humid and equable climate perm repeated flushes and pluckings of the leaf. In the valleys of Brahmaputra and Surma the yield averages about 408 lb.; an Bengal about 381 lb., the yield in Jalpaiguri (the Duars) b 517 lb., and in Darjeeling about 239 lb. Elsewhere the yiel much lower.

The area under tea has expanded from year to year without a p during the thirteen years comprised in the second of the tables. 1885 the area was about 284,000 acres; in 1897 it had increase 493,710¾ acres, the increase being in the ratio of 73·9 per cent. largest expansion last year occurred in Travancore, where the cul tion of tea appears to be largely on the increase. The planters v however, unwilling to furnish information, and the recorded fig are quite unreliable. Thus, although the area under mature pl and the labour force are shown to have increased three-fold, quantity of manufactured leaf is returned at just half the figur the previous year. There were also considerable increases in Be and Assam, and a slight increase in the Punjab and the No Western Provinces. Madras shows an increase in 1897, and cul tion is said to be increasing in the Malabar District, but the fig which fluctuate from year to year are not reliable.

The number of acres added to the tea-growing area each has been:

	Acres.		Acres.
1886	14,294	1892	12,432
1887	14,584	1893	20,970
1888	11,524	1894	4,688
1889	9,374	1895	15,190
1890	11,126	1896	17,396
1891	17,610	1897	60,430¾

The average addition in the last five years (23,735 acres) was nearly double the average addition (12,413 acres) in the five preceding years. The increase in 1897 was at the rate of 13·9 per cent.; in 1896 the increase was at the rate of a little more than 4 per cent.

The plantations vary greatly in size. In Assam, where the industry is mainly carried on by Europeans with ample capital, where fusions of estates have been carried on for some years in view to economy of management, and where most plantations have large unplanted areas attached to them, the area of a plantation averages as much as 378 acres. In Bengal the average area of a plantation is 246 acres; in the North-Western Provinces the average falls to 101 acres, while in the Punjab, where natives grow tea extensively in the Kangra Valley, there are less than four acres to each plantation. In Madras the average is about 61 acres. In Travancore the area of a plantation averages as much as 448 acres, but, as stated above, the statistics for this State are not reliable.

PRODUCTION.

The quantity of tea produced has increased in the past thirteen years in much greater ratio than the area under cultivation, for, while the area has increased by 74 per cent., the increase in production has been 115 per cent. In 1897 the production in Assam, where the season was on the whole unfavourable, decreased by 2½ million pounds, but this was compensated by an increase in Bengal and the other British Provinces. The figures for Travancore, which, as already explained, are obviously erroneous, are thus responsible for the decline in the total production.

Representing the area and production in 1885 by 100 in each case, the ratio of increase in each compared with that year is stated below, the actual increase of production each year over the production of the preceding year being also stated:—

	Area.	Quantity produced.	Actual increase annually in lb.
1885 ...	100	100	...
1886 ...	105	115	10,899,835
1887 ...	110	129	9,826,270
1888 ...	114	139	7,540,462
1889 ...	117	149	7,250,331
1890 ...	121	156	4,993,531
1891 ...	127	173	11,831,496
1892 ...	132	170	— 1,873,628
1893 ...	139	185	10,253,626
1894 ...	141	188	2,465,144
1895 ...	146	200	8,694,783
1896 ...	152	218	12,617,847
1897 ..	174	215	— 2,643,846

PERSONS EMPLOYED.

The number of persons employed in the tea industry in 1897 is returned at 560,341 (permanently, and 101,980 (temporarily), or altogether about two-thirds of a million people (662,321 persons), which would work out to about 1·34 persons to the acre.

EXPORTS AND CONSUMPTION.

The tea produced in India is exported, mainly to the United Kingdom, to the extent of about 96·96 per cent. of the average production. The subjoined figures give approximately the quantity of tea consumed in India, the figures representing the average of the last five years:—

		lb.
INDIAN TEA ...	Produced	144,115,407
	Exported	139,776,797
	Left in India	4,338,610
FOREIGN TEA ...	Imported	7,418,538
	Re-exported	4,356,113
	Left in India	3,062,425

Ceylon provides India with a million pounds of the foreign tea imported, the bulk of the imports being Chinese. Of the 7⅓ million pounds left in India, 4⅓ are Indian and 3 are foreign. Part of this may represent stocks in hand, and the exports across the frontier by land, which are but imperfectly recorded, may be understated. More than a million pounds are purchased annually for the British Army, and a larger quantity must be consumed by the European and Eurasian civil population. In relation to the population of the country, the quantity consumed is infinitesimal, and the use of tea by the native population is practically limited to a small minority in the larger towns.

As stated above, the principal market for Indian tea is found in the United Kingdom, as will be seen from the figures appended, which state the quantity exported (in lb.) in the last three years:—

	1895–96.	1896–97.	1897–98.
By Sea.			
To United Kingdom	123,947,369	135,456,884	137,655,857
Persia	3,188,099	1,993,823	1,464,394
Russia	486,255	457,634	689,271
U. States and Canada ...	989,065	1,607,731	1,523,236
Australia	6,774,652	6,155,895	6,792,654
Trans-frontier.			
Kabul, Kashmir, and other countries on the N.W. Frontier ...	1,195,264	1,499,120	868,560
Other trans-frontier countries ...	6,048	13,664	18,144

PRICES.

The prices of tea in Calcutta have fluctuated greatly since 1873. Taking the price in March, 1873, to be represented by 100, it appears that until 1885 the level was well above that point, varying from 110 to 148. In that year, coincidently with the great fall in exchange and in general prices, the level fell to 90, and a low level was maintained in the following years until 1895, when there was a rise again to a high level. In the last three years, however, there has been a further decline in price. These figures all represent the course of prices of Fine Pekoe in January of each year as given by the Bengal Chamber of Commerce. The level for each year from 1873 is stated below:

1873	...100	1882	...126	1891	... 81
1874	...123	1883	...110	1892	... 71
1875	...123	1884	...116	1893	... 87
1876	...136	1885	... 90	1894	... 52
1877	...148	1886	... 90	1895	... 97
1878	...135	1887	... 77	1896	... 84
1879	...129	1888	... 84	1897	... 64
1880	...126	1889	... 77	1898	... 61
1881	...135	1890	... 63		

In the Statistical Bureau, the average prices of the various descriptions of tea sold at the public sales held in Calcutta during the tea season have been computed for some years past, and the results are regularly published in the review of the trade of India. From these returns of prices the figures below are taken, being the prices in annas and pies per pound of the three descriptions which form the largest proportion of the tea sold:—

	Broken Pekoe.		Pekoe.		Pekoe Souchong.	
	AS.	P.	AS.	P.	AS.	P.
1889 ...	9	9	7	5	5	7
1890 ...	8	10¾	7	2	5	8¼
1891 ...	8	7½	7	0½	5	3⅛
1892 ...	11	3⅓	8	9	6	5¼
1893 ...	9	2⅘	7	2⅔	5	4⅘
1894 ...	11	8	9	4⅘	7	2⅝
1895 ...	9	0	7	3⅘	5	11
1896 ...	8	7¾	6	9⁹⁄₁₀	5	5¼
1897 ...	7	5⅝	6	0¾	4	10⅔

DISTRICT ASSOCIATIONS.

NELLIAMPATHY.

PROCEEDINGS of a Meeting held at Victoria Bungalow, Wednesday, November 2nd, 1898.

PRESENT.—Messrs. Denny, Everington, Foster, C. Hall, Murray, Welchman, J. C. Abbott (*Honorary Secretary*), Mr. J. B. Burnett in the *Chair*.

Read Proceedings of last meeting.

Medical.—Read letter from the Hon. Secretary to the Medical Officer to the Cochin Government and his reply stating that he fully endorsed the view of the Association as to the importance of providing an Apothecary for the Hills, and opening a dispensary at once, and that he had addressed Government on the subject. He further suggested that as a precautionary measure against plague, it might be advisable to have coolies coming to the district examined at Nemmara.

It was resolved that the Association does not consider this at present necessary, and that the examination at Nemmara would not be effective, as many coolies came to the district through British Territory and thus would escape observation.

Read letter from the Hon. Secretary to the Dewan asking that an Apothecary be appointed and a dispensary opened at once.

Read the Dewan's reply stating that he concurred with the Association and had requested Dr. Coombes to appoint an Apothecary and open a dispensary as soon as possible.

Read letter from the Secretary to the Dewan stating that the offer of two acres of land as a site for the hospital, kindly made by the owners of Poothapara Estate, was accepted with thanks, and requesting the Hon. Secretary, N.P.A., to communicate with the owners for effecting a speedy transfer, as orders had been issued to the Chief Engineer to take charge of the site.

Bazaar.—Read letter from Messrs. Burnett and Son calling attention to the dangerously insanitary condition of the Nelliampathy Bazaar, and asking the Association to take action about this. *Read* the Honorary Secretary's reply stating that the condition of the Bazaar had been frequently brought to the notice of the authorities, and although this had usually resulted in its being roughly cleaned up at the time, it had very soon been allowed to relapse into its former filthy state. *Resolved* "That the Honorary Secretary should again write to the Dewan and ask that some steps be taken to keep the Bazaar in proper order, and that one or two coolies be kept at the Bazaar to attend to this. That if the Government would not sanction the necessary expenditure, it should be met by the Association."

Telegraph.—Read letter from the Superintendent, Madras Division, on the subject of opening a Combined Office at Nelliampathy, and stating that a guarantee of Rs.1,550 per annum would be required from the Association. *Resolved* "That the matter be allowed to drop, as it would not be possible to guarantee the amount required."

Lady-Birds.—Read letter from the Honorary Government Entomologist, Ceylon, to the Secretary, U.P.A.S.I., giving an account of an experimental consignment of Lady-Birds which he had received from the Cape by letter-post, and which had proved partly successful.

Classification of Coffee.—Read correspondence.

Roads.—Read letter from the Acting Chief Engineer saying that the road through Karapara should have his attention, and asking if any planters in the district would be prepared to undertake the maintenance of the Sircar roads.

Mr. Hall stated that although work had been commenced some time ago on the Poothoondoo Bridge, it was still incompleted, and that nothing was being done to it at present, consequently the road remained blocked to the great inconvenience of some estates. *Resolved* "That the Honorary Secretary should address the Dewan on the subject, and call attention to the general condition of the roads and bridges."

A vote of thanks to the Chair terminated proceedings.

(Signed) J. BURNETT BURNETT,
Chairman.
(„) J. C. ABBOTT,
Honorary Secretary.

WYNAAD.

PROCEEDINGS of a General Meeting held at Meppadi on 2nd November, 1898.

PRESENT.—J. W. Hockin (*Chairman*), R. Lamb, C. C. Lance, W. MacKinlay, B. Malcolm, B. Nelson, H. Powell, F. Robinson, G. Romilly, A. Trollope, and E. DeFonblanque (*Hony. Secy.*)

Proceedings of last Meeting.—The Proceedings of the last meeting were taken as read.

Pudu Padi Hotel.—Read letter from Mr. T. J. Ferguson enclosing cheque for balance of Pudu Padi Hotel Fund. *Recorded.*

Proposed by Mr. W. MacKinlay, *seconded* by Mr. G. Romilly, that Messrs. J. W. Hockin, R. Lamb, and E. DeFonblanque form a committee with full power to settle the Pudu Padi Hotel question and pay the promised Rs.15 per month to C. Shangaram when they consider it advisable. *Carried.*

Roads.—Read letter from Mr. T. J. Ferguson on the subject of the Palapoy bridge.

Proposed by Mr. G. Romilly, *seconded* by Mr. W. MacKinlay, that a strong protest be sent to the District Board against their recent orders closing the traffic over the Paliboya bridge to loads exceeding three quarters of a ton, and that this Association sugg that the simpler remedy would be to build a temporary bridg sufficient strength to carry the usual traffic.

Plague.—Read letter from the Collector of Malabar on the sub of the site of a plague camp between the 16th and 17th milestone the Meppadi-Choladi road. *Resolved* that the Association appr of the site for a frontier plague camp. *Resolved* that Mr. T Ferguson be requested to send the Association a copy of pamphlet on plague detection and prevention to be printed in Proceedings,

Non-Service of Warrants.—Read letters from the Superinten of Police on the subject. *Recorded.*

Coffee Robbery.—Read letter from Superintendent of Po *Recorded.*

Sale of Estates for Arrears of Revenue.—The Secretary was structed to ask the Collector to have the sales of Estates printe English as well as in Malayalam.

Tea Crop Estimate.—The Secretary was requested to collect mates of the tea crop of the district for the coming year.

A vote of thanks to the chair closed the Meeting.

E. DEFONBLANQUE,
Hony. Secy., Wynaad Planters' Associa

[APPENDIX.]

FROM
THE MEDICAL OFFICER TO
COCHIN GOVERNMENT,

TO
THE HONORARY SECRETARY,
Nelliampathy Planters' Association,
Nelliampathy.

SIR,

I have the honour to acknowledge receipt of your letter of 30th and to inform you that I fully endorse the view of the Nelliamp Planters' Association, and have addressed Government on the portance of providing an Apothecary for the Hills and openi dispensary at once. On hearing from Government, I shall comm cate with you again.

2. It is difficult to suggest precautionary measures against pla for the Nelliampathy Hills, but I think it would be advisable to the coolies examined and certified to as free from plague by Apothecary in charge of the Nemmara Hospital before they pro up the Hills, and if your Association finds this arrangement feas I shall be glad to issue the necessary orders to my subordinate.

3. For your information I have drawn up the following s and symptoms which may be regarded as typical :—

A rise of temperature on the first day of the disease of a very nounced character, 106° or more being common, accompanied severe shivering and frequently vomiting. In 95 per cent. of cases the conjunctivæ are found to be injected on the second da the disease. The tongue may be described as being like w leather, or of a rusty brown "typoid" appearance with red or inflamed edges. When spoken to, the person answers in a s hesitating, indistinct manner, the syllables being separated from another, and the impression conveyed being that the individu under the influence of alcohol. The gait is also in many cases gestive, being like that of a drunken man. Some cases, on the o hand, may present violent maniacal symptoms, or the man answer in an irritable manner as if resenting being questio But the typical appearance is the stupid, dazed look of one n awakened from a deep sleep, and there is evident difficulty in re ing new surroundings, and understanding what is going on aro Vomiting or diarrhoea, or both, may be present or not. Bu should, of course, be carefully looked for in the groins, armpits, maxillary regions, and in fact in all places where glands are kn normally to exist, as they are sometimes found in most unexpe spots.

4. Should plague appear, it will be necessary for your Associa to purchase a supply of lymph from the Plague Research Lab tory, Bombay, for inoculation purposes, and I shall be glad to p my Apothecary at Nemmara on Special duty to carry out treatment.

5. The plan of treatment pursued in Bombay is the followin Stimulants, good nursing, and the treatment of symptoms as arise. For a high temperature cold water over the head sponging of the body. Phenacetin and Antipyrin are found

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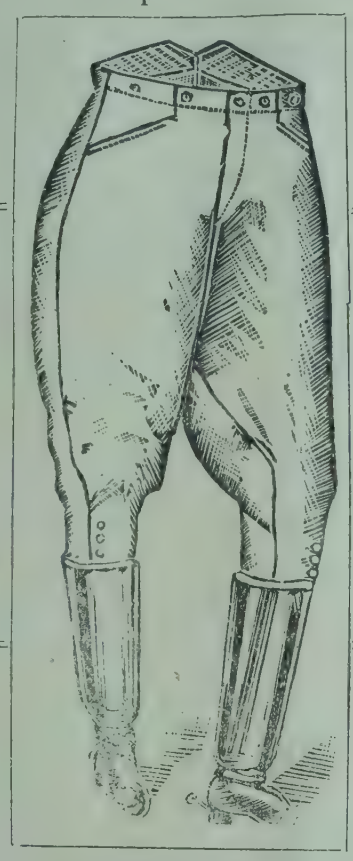

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[w. 15-10-98—14-1-99.]

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I am, etc.,

(Signed) G. N. COOMBES,

Medical Officer to Cochin Govt.

ERNAKULAM,
6th October, 1898.

MARKET REPORT.

COFFEE.

Messrs. Wm. Jas. & Hy. Thompson's Report of the Colonial Markets for the Week ending October 26th, 1898, says :—Bank rate 4%, Bombay Exchange closes at 1s 4d. Brazil Exchange $8\frac{7}{16}$d. Rupee paper $3\frac{1}{2}$% $61\frac{7}{8}$. Silver $28\frac{1}{16}$d per oz.

A dull tone continues to prevail at auctions, the moderate supplies being chiefly bought in. The small proportion of good, however, continues to sell well. Brazil markets are again lower.

Futures have been flat throughout the week, but at the close a slightly firmer tone has prevailed, prices still shewing a decline of about 6d per cwt., viz. :—Good average Santos in Havre, December delivery, fcs. 36.75, in Hamburg pf. $30\frac{3}{4}$, and No. 7 low ordinary Rio in New York $5.25.

Daily receipts averaged 10,800 bags in Rio, and 24,800 bags in Santos.

To-day's London official quotations are :—

	Oct.	Dec.	Mar., '99.	May.	July.
SANTOS ...	29/6	29/9	30/6	30/9	31/3

We quote :—

Ceylon, mid. to good mid.	101/@108/	Costa Rica, mid. to fine...	69/ @
Do. small to low mid.	79/ ,, 99/	Do. ord. to low middling.	37/ ,
East India, mid. to good mid...	70/ ,, 92/	Jamaica, good to fine ord.	32/ ,
Do. small to low mid.	58/ ,, 72/	Do. greenish to fine colory...	65/ ,
Guatemala, mid. to fine...	66/ ,, 98/	African ...	26/ ,
Do. good ord. to low mid...	50/ ,, 64/	Columbian, ordinary ...	36/ ,
Salvador, good ord. foxy greenish...	38/ ,, 42/	Do. good ord. to low mid...	42/ ,
		Do. mid. to fine...	64/ ,

Receipts in Brazil to 26th October compare as follows with pre years :—

	1898-99.	1897-98.	1896-97.
RIO	1,316,000	1,851,000	1,429,000
SANTOS	2,781,000	3,273,000	2,413,000
	4,097,000	5,124,000	3,842,000

The *London Commercial Record* of 28th ultimo reports :—

A dull market exists with a drooping tendency in prices, an quantity offered at auction consisting almost entirely of Central Ame and Columbian descriptions, has more than sufficed for the needs o trade, only a small proportion sold, buyers' ideas being generally " Futures " have been slow and prices show a further decline, the to the close being flat as follows :

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We have now secured the services of Mr. W. J. Marden, whose experience as a Cu and Practical Tailor extends to a period of over 20 years in some of the leading house England and India, and whom we can, therefore, confidently recommend as a veteran ex cutter. Having placed our Tailoring Department under his control, we guarantee per Fit and Style. This assurance, coupled with our proverbially Cheap Rates, will, we tr induce you to give us a trial order, which we respectfully solicit.

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[w. 3-9-98—t.f.o.]

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[w. 1-10-98—t.f.o.]

London	...Santos	...December delivery ...	29s. 6d.
New York	...No. 7 Rio	... „ „ ...	5.15 cents.
Hamburg	...Santos	... „ „ ...	30½ pf.
Havre	...Santos	... „ „ ...	36½ francs.
Holland	...Good ordinary Java	... ...	34 cents.

Imports Deliveries and Stock of Coffee in London are as follows :—

		Stock.		Imports.	
		1898.	1897.	1898.	1897.
West India	... tons	481	307	1,676	825
Ceylon	... „	116	164	326	537
East India	... „	1,566	1,516	5,614	5,190
Mocha	... „	516	419	768	541
Brazil	... „	4,098	2,484	3,684	2,601
Other Foreign	... „	11,597	5,405	28,785	22,073
Total	... „	18,374	10,295	40,853	31,767

		Home Consumption.		Export.	
		1898.	1897.	1898.	1897.
West India	... tons	285	294	1,247	574
Ceylon	... „	122	160	194	336
East India	... „	2,109	1,998	3,046	2,487
Mocha	... „	606	453	142	197
Brazil	... „	808	1,140	1,752	2,212
Other Foreign	... „	7,629	7,741	14,230	12,025
Total	... „	11,559	11,786	20,611	17,831

The preceding figures exhibit—

In the imports an increase this year of	9,086	tons.
Home consumption a decrease of	227	„
Export an increase of ...	2,780	„
Stock an increase of ...	8,079	„

This week's auctions have passed off as under :—

JAMAICA.—Of 152 barrels offered only 15 barrels sold—Blue Mountain triage 68s 6d, good to fine colory 105s to 110s.

GUATEMALA.—Of 2,360 bags catalogued only about 200 bags sold—London-cleaned, smalls 33s 6d to 36s, peaberry 66s to 92s.

COLOMBIAN.—Of 4,093 bags catalogued about 1,500 sold—fine fine ordinary greenish and gray 50s to 56s ; London-cleaned, small 29s to 42s, damaged and dull soft mixed red 51s 6d to 58s 6d, low middling dull greenish 60s to 60s 6d, middling greenish colory 63s 6d to 68s, good middling and boldish colory 70s to 77s, peaberry 64s 6d to 78s.

GUAYAQUIL.—77 bags pale sold at 36s.

COSTA RICA.—Of 449 bags offered only 50 bags small pale sold at 31s to 31s 6d.

SALVADOR.—572 bags withdrawn.

VERA PAZ.—Of 716 bags offered 70 bags sold—triage 25s, small 37s, low middling 69s, peaberry 82s.

BRAZIL.—1,468 bags washed Santos all bought in.

Exchange $8\frac{13}{32}$d, previous day $8\frac{7}{16}$d.

Havre, Oct. 26.—Market firmer, Santos good average December opened at 36½f. and closed at 36¾f., March opened at 37f and closed at 37¼f.

Hamburg, Oct. 26.—Good average Santos December opened at 30½m and closed at 37¼m.

New York, Oct. 26.—Closing prices of No. 7 Rio were as follow :—

	Oct.	Nov.	Dec.	Jan.	Feb.
Oct. 26	5.05	5.10	5.25	5.35	5.40
Oct. 18	5.05	5.05	5.25	5.35	5.45

Oct. 28—At auction to-day the following were offered :—4 packages Ceylon, 88 bags East India, 100 bags Lahat, 11 packages Jamaica, 1,329 bags Guatemala, 97 bags Vera Paz, 898 bags Costa Rica, 234 bags New Granada, 144 bags Nicaragua, 691 bags Colombian, 249 bags Coban, and 329 bags Santos. The sales went off quietly at irregular and, as a rule, easier prices.

TO-DAY'S HAVRE AND HAMBURG COFFEE TERMINAL QUOTATIONS.

(Communicated by Mr. Edward Nauen.)

	Havre.			Hamburg.	
	10.15 a.m.	12.30 p.m.	3.20 p.m.	10.25 a.m.	2.45 p.m.
Dec., 1898	36½	36½	36½	30½	30½
March, 1899	37	37	37	31	31
May	37¼	37¼	37½	31¼	31¼
Sept	38	38	38¼	31⅝	31¾
	Quiet. Value.	Quiet. Buyers.	Steady. Buyers.	Steady. Value.	Steady. Buyers.

TEA.

CHINA.—A quiet trade is passing privately at about previous prices, says the *Record* of 28th ultimo. Auctions went off slowly, Congous being only bid for in a desultory manner, and Scented Teas were all hard to quit.

During the week 3,708 packages have been catalogued for public sale, and partly sold as under :—

half-chests Black leaf Congou, common 3⅞d to 4d, fair 4⅝d to 4¾d.
ditto Red leaf Congou, fair 4⅝d, Panyong 5½d to 5⅝d, Soomoo 6¼d.
boxes new make Congou, 5d to 7d.
half-chests Souchong 5d.
boxes Canton Scented Caper, medium to good medium 5d to 7d.
ditto Scented Orange Pekoe, medium to good medium 7½d to 8½d fine 1s 2½d.

INDIAN.—Public auctions were heavier, comprising 53,400 packages *versus* 48,300 packages in the previous week, and 46,300 packages at this time in 1897. Notwithstanding these ample supplies there was a steady all-round enquiry for useful and fine descriptions at firm to occasionally dearer rates, while parcels lacking point and strength were, on the other hand, somewhat neglected and ruled in buyers' favor.

Common grades, both leafy and broken, were taken up freely at fully former quotations, and medium with good cup often advanced ¼d per lb. Fine and finest, where no falling off in quality was noticeable, met with strong competition and realised high figures. A fair selection from South India, chiefly Travancore, was brought forward, but did not show any marked improvement on late arrivals.

For 37,500 packages on garden account 8⅜d per lb., was obtained, against 9⅛d per lb. for 34,500 packages, and 8⅝d per lb. for 37,800 packages in the two preceding seasons respectively.

Total printed for the month (including that advertised for 31st instant.)

1898.	1897	1896.
238,600 pkgs.	187,300 pkgs.	187,800 pkgs.

which will make rather over 50 million lb. of the crop disposed of to the end of October, contrasted with 47¾ million lb. to the corresponding date a year ago.

CEYLON.—The sales were rather lighter, amounting to 20,000 packages compared with 24,500 packages on the 18th instant and 19,700 packages in 1897. There was much unevenness in the bidding, particularly for the finest lines, but on the whole no material change was establshed. Good medium to fine Pekoes and Broken Pekoes were in demand and some full prices were paid for a few of the latter when drawing thick liquor at from 9d to 1s per lb. Common to fair sorts, suitable for the home and export trades, were wanted, and sold with a hardening tendency.

The average is slightly over 8½d per lb. On the 20th inst. it stood at 8¾d per lb. and 9d per lb at this date in 1897.

During the month the number of packages offered was :—

1898.	1897.	1896.
75,500 pkgs.	75,000 pkgs.	80,400 pkgs.
(Avge. 8⅝d per lb.)	(Avge. 8⅞d per lb.)	(Avge. 8¾d per lb.)

JAVA.—Nearly 1,100 packages of direct import occupied the attention of dealers, desirable breaks passing well, the 107 packages from Perbawatte bringing 9¾d per lb.

In October the following were catalogued :—

1898.	1897.	1896.
4,100 pkgs.	2,100 pkgs.	2,800 pkgs.
(Avge. 7d per lb.)	Avge. 7¼d per lb.)	(Avge. 6¾d per lb.)

Deliveries.

The clearances of all Tea (on which duty has been paid) from the London warehouses, as per official returns, were :—

From 1st to 25th Oct., 1898.....15,389,427 lb.
„ „ 1897.....13,906,186 „

During the week the following have been printed for sale by public auction :—

	Sold. Pkgs.	Withdrawn. Pkgs.	Total offered. Pkgs.
India	48,115	5,236	53,351
Ceylon	18,511	1,481	19,999
Java	992	102	1,094
Total	67,618	6,819	74,437

Also 424 packages from second hands.

Messrs. Gow, Wilson and Stanton's Indian, Ceylon, and Java Tea Report, dated October 28th, 1898, says :—

QUANTITY BROUGHT TO AUCTION IN LONDON

FROM 1ST JUNE TO DATE.

	Indian.	Ceylon.	Java.
1898-1899.	584,675 pkgs.	507,172 pkgs.	19,783 pkgs.
1897-1898.	574,436 „	540,402 „	18,379 „

53,563 pkgs. Indian
20,568 „ Ceylon
1,134 „ Java.
} Total 75,265 packages were offered in public auction this week.

The present position of the Tea industry seems to justify a somewhat more hopeful view of the market in the near future.

Regarding Indian Tea, the quantity expected is not appreciably in excess of that received last season; deliveries so far this season have exceeded imports, a most unusual occurrence, and are some 5,000,000 lb. ahead of the same months last year, while the heavy stocks which have so long depressed the market owing to their excess over those of the corresponding period in the previous year have at length been considerably reduced.

The table below shows that the average price of each district is lower than last season.

The latest estimate of the Ceylon crop is only 3 million pounds above last year. Owing to the rapid development in foreign markets the quantity available for this country will probably be 4 or 5 millions less; the stock in London is below the same date last year, while the average price is slightly under 1897.

Duty payments during last winter showed a considerable falling off, whether owing to increased use of cocoa, the Engineer's strike or other causes; but as yet there are no indications of the same influences being at work.

Taking all the above facts into consideration, and remembering the unusually low price to which the market has fallen, it seems possible to hope for some recovery before very long.

Indian. Although the week's auctions were the heaviest so far held this season, the market slightly hardened, all grades except medium kinds being in good demand, while a tendency to advance was occasionally noticeable in low priced Teas Quality from Assam, Darjeeling and Dooars is not equal to arrivals of a few weeks back. Sylhet and Cachar, although showing some little improvement over former Invoices below the average.

Total Tea sold on Garden account 1st June to date 1898, 417,456 pk av. 8·71d. 1897, 412,962 pkgs., av. 9·09d.

Ceylon. Bidding was strong for Teas for price and for medium gr up to about 9d., and the market in consequence very firm. Over t figure competition was less keen, and prices in several instances gave w especially noticeable in the case of higher class Teas.

Average for week 8.50d., against 9.03d., same period last year.

Ceylon Tea sold on Garden Account 1st January to date 1898, 939, pkgs., av. 7·69*d*. 1897, 923,952 pkgs., av. 7·72*d*.

	1898.	1897.	1896.	18
PEKOE SOUG. (Ordinary leaf; fair liquor) ...	6½d	6¾d	6¼d	
PEKOE. (Ordinary leaf; little twist; fair liquor) ...	7¾d	8d	8d	
PEKOE SOUG. (Rather bold leaf; indifferent liquor) ..	5¼d	5⅓d	5d	
PEKOE. (Somewhat bold leaf; indifferent liquor) ...	5¾d	6¼d	5¾d	

Java. The Teas sold well at prices fully up to late rates. 108 packa "Tjiboengoer" averaged 9¼d. per lb.; 107 packages "Perbawatte," 9 per lb.

[NOTE.—The exports of Ceylon Tea to Australia, for 1897, should h been printed in last week's circular as lb. 9,205,561, not lb. 6,205,561.]

PUBLIC SALES FOR SOUTH INDIAN TEA.

(AVERAGE FOR ALL INDIA 8.25d.) *October, 28th.*

GARDEN.	Total.	Average.	Broken Org. Pek. or Flowery Pekoe.		Pekoe and Unassorted.		Broken Pekoe.		Pekoe Souchong.		Broken and Souchong.		Fannings, Dus and Various.	
	Quantity	Price.	Quantity	Price.	Quantity	Price.	Quantity	Price.	Quantity	Price.	Quantity	Price.	Quantity	Price
Travancore ...	991 p	6·30												
Arnakal ...	7 b	7¾	...	...	7 b	7¾	...	...	...	...	...	...	...	...
Bon Accord ...	203 p	6¼	...	...	73	5¾ 6	76	7¼ 7½	28	5¼ 5½	...	...	26 p	3¾ 7
Great Valley ...	96½ c	5½	...	...	62½ c	5¼	24½c	6½	...	...	2½c	4½	8½c	3¼
Merchiston ...	23 p	6	9½ c	7	10	5½	4½c	6¾	...	...	...	...	...	...
Poonmudi ..	195 p	5¾	...	...	91	5½ 5¾	51	6½	30	5¼ 5½	...	...	23½c	3½ 5
Sth Indian I CKK.	174	6¾	115	6 8¼	29	5¼ 5¾	...	...	...	...	...	...	30	4¼ 6
Sth Trav Est Ven ...	147	7	...	...	56	6¾	63	7¾ 8	28	5½	...	...	...	...
Stagbrrook ...	146	6	112	6 6½	17	5½	...	...	8	5¼	...	...	9	5½

COCOA.

Owing to the very dull tone no auctions were held on Tuesday, and private sales have not been very important, including only 500 bags Trinidad at 77s to 79s, and 100 bags Caraquez Guayaquil at 79s to 80s per cwt.

Import, Home Consumption, Export and Stock of COCOA in London are as follows:—

		1898.	1897.	1896.	1895.
Imports, B. P. ...	bags	114,126	105,341	115,061	117,141
Foreign ...	,,	99,340	72,402	59,615	76,148
Home Con., B. P. ...	,,	85,750	72,216	63,581	59,677
Foreign ...	,,	51,482	48,170	45,922	47,918
Exports, B. P. ...	,,	30,190	39,139	34,913	31,386
Foreign ...	,,	25,548	40,664	26,145	29,173
Stock B. P. ...	,,	58,225	71,861	82,385	75,351
Foreign ...	,,	55,810	43,786	65,080	70,603

IN AUSTRALIA.

The market all round remains firm. Indians have sold readily, the auction sales, except the Bucephalus and Fazilka, being especially active. Chinas continue in demand at the late advance, and all price teas sell readily. Ceylons very firm, and owing to the scarcity of tonnage from Colombo the market is likely to remain so.—*Leader*, Oct. 22, Market Report.

IN AMERICA.

New York, Oct. 12.—At the auction sale by the Montgomery Auction Company, on October 5th, 4,029 packages were sold. The new Greens brought low prices, but good figures as compared with recent prices obtained for old crop; 238 packages fine toasty liquor Fychow averaged, net 21.11c; duty paid. The H. C. Fair Extra Gun-powder brought 28c; fair first, 23c; off first, 21½c. Fair first Imperial, 25c; very good second 21½c; third 20c. Poor extra Young Hyson, 21½c. Siftings and off first, Young Hyson, 19c; second Young Hyson 20c; third Young Hyson, third Hyson and Twankay, 18½c. Basket-fired Japan, Good Medium, are worth 26c. A line of Nibs, old crop, sold at 17c. Old crop Congous, Medium Fully Medium, 17½ at 18½c; common 16½c. Old crop Foochow, gradi Fair, brought 20½c. The new crop Formosas were sold in bond. Lo grade showed an improvement of fully ½c per pound. An invoice of 5 packages Good to Fully Good averaged 13.98c; 545 packages Go averaged 13.72c; 506 packages Good averaged 13.52c. Quotations are: L Superior, 16c; Good, 13½ to 14c; Fair, 13c.—*American Grocer.*

PEPPER.

Black.—A further decline has taken place on the spot, fair quali Singapore selling at 4½d. For arrival a firmer tone is apparent; 100 to Singapore sold, near at hand 4½d, and October-December (s.) 4 9/16 d to 4⅝ per lb. 25 tons January-March 4 11/16 d.

At auction on Wednesday only 37 bags damaged were offered and sol

White is also easier on the spot, but dearer for arrival. For arrival abo 75 tons done—Singapore, Nov.-Jan. (s.) 8 1/16 d, Dec.-Feb. 8 1/16 d to 8⅛d, a Jan.-March 8⅛d; and Penang, Oct.-Dec. (s.) 7 7/16 d per lb.

At public sale 499 bags Singapore offered and 120 bags sold—fine bo 9d, good bright 8d to 8½d, good but partly shrivelled 7½d to 7⅞d per 30 bags Penang bought in.

Cayenne.—24 crates (containing two 28lb. tins) yellow Nepaul retir unsold at 1s 3d; 9d per lb. bid.

GINGER.

Cochin.—There is not the slightest improvement in demand, the mark being, in fact, *in statu quo ante.* Catalogues on Wednesday offered 1 cases 483 bags, of which 8 cases 85 bags sold:—medium and small rou cut, slightly mouldy, 42s, ordinary medium and small washed rough Cochi mouldy, 20s per cwt.

Japan.—There is very little offering, but a sale of 100 bags very heavi limed has been made at 17s per cwt.

African.—60 bags bought in at 24s per cwt.

Jamaica steadier. 99 barrels about half sold—good middling brig washed 76s to 80s, middling 70s to 72s, common small and dark 65s to 6 6d per cwt.

PLANTING OPINION.

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WRITTEN BY PLANTERS FOR PLANTERS.

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SEASON REPORTS.

Coorg. POLLI BETTA, *22nd Nov.—Weather.*—Mostly clear and chill, with some E. wind since last report. Some clouds last evening. *Crops.*—Crops came on with a rush at first Siddapur way, but they have stopped now. No picking begun Polli Betta way yet. Only a few scattered forward trees with any ripe on them. *Labour* plentiful. *Health* generally fair. *Prices* mostly easier. *Interesting Item.*—Mr. Cameron's lecture on 30th at 9 A.M.

S. E. Wynaad. DEVALA, *23rd Nov.—Weather.*—During June and July the monsoon was not favourable, as in the previous years sun and rain at intervals, but from August to 14th November the monsoon was very heavy; from the 15th instant no rain, and the frost set in; the planting that was done in June and July is suffering heavily from leaf-disease, shrubs planted during August and September are coming on vigorously. *Crops.*—Picking is starting in a small way, and a berry here and there is ripening up. *Plant-diseases.*—Leaf-disease here and there, but it is disappearing now, and no damages like last year. *Health.*—Very good, but the aborigines are in a great fear of the plague inoculation, and as soon as they see any strangers, they run away to the jungle. *Labour.*—Always plenty.

Lower Pulneys. *22nd November.—Rainfall.*—From 1st June to 20th August (81 days) was a season of severe drought on these hills; during this period we had only 11 days of rain, averaging in all 1·75 inches, the heaviest fall being 65 cents, the rest in light showers of 5 to 25 cents (of no account to the drooping coffee). From 20th August the rains set in steadily, with the following record:—August 20th to 31st, 6 days of rain registering 4·25 inches; September, 18 days of rain registering 12·45 inches; October, 21 days of rain registering 10·50 inches to November 22nd, 14 days of rain registering 8·15 inches. Here are two extremes,—the longest drought, followed up by one of the best seasons of rain. Of course, all estates have suffered more or less from the drought, some very badly indeed; the rains were all too late to be of any real benefit to these crops. From 16th to 21st November we came in for one of those delightful breaks in the N.-E. Monsoon which we all so much appreciate after weeks of damp, misty weather, when everything round one gets into a state of mildew and mess. Rain has set in again to-day, and for those of us who are busy picking it is anything but pleasant. *Crops.*—

Picking has set in steadily on most estates. I fear the quality of our coffee will not be up to the average: a drawback with a dull coffee market in view. *Cardamoms*—crops cannot be called good this season. *Plant-diseases.*—There is a little "leaf rust" about, but nothing of an alarming character. Green bug has disappeared from our coffee; it has undoubtedly done harm to the crop, but a mere nothing to the damage caused by drought. It is a remarkable and, at the same time, a most fortunate circumstance for us that this bug *entirely* disappears from our coffee at this season of the year; it gives our trees a chance to recover before next blossoming season. Can any of your readers give a reason for this mysterious disappearance of the green bug during our wet weather? I understand it is not so in Ceylon; in fact there the wetter the weather, the more prolific the bug. Black bug certainly does not disappear in this way. On the whole, coffee is looking remarkably well throughout the district. *General Health.*—Fairly good. *Labour.*—Sufficient for all requirements.

BRAZILIAN COFFEE.

RECENT pessimistic utterances concerning the prospects of the Coffee Market have led us to go somewhat closely into the facts concerning the production of Coffee in Brazil. This is the chief factor that influences prices, not merely because the Brazilian crops represent a very large proportion of the world's supplies, but also because they are freely operated in by speculators, who take little or no interest in such comparatively minor products as Indian coffee, or the West Indian berry and others. Now, it is certainly true that 1897 witnessed a very large crop of Brazilian coffee, so large that the year has been described as "in every respect extraordinary and exceptional" from the point of view of the coffee-planter in Brazil. Exclusive of transit, coffee entries for Rio and Santos were 10,032,101 bags, against 7,273,572 for 1896. An increase of nearly 38 per cent. in a year is a serious matter; but large as entries were, shipments tried to get level with them. In fact, the total shipped, exclusive of Ceará, from Rio, Santos, Victoria and Bahia, amounted to 10,431,184 bags. It goes without saying that unless consuming markets could show a large increase in offtake, prices must be depressed by shipments such as this. That demand had not sufficiently expanded to counterbalance the enormous growth of production, is shown by the fact that stocks had largely increased in all the chief markets of the world by the end of 1897. Before commenting on the effects of this, let us note what particular markets were most likely to be affected. The Coffee exported from Brazil in 1897 was shipped to the following destinations :—

	United States.	Europe.	S. America.	Other countries.	Total.
Rio ...	2,790,722	1,214,868	287,478	145,511	4,438,579
Santos ...	1,499,599	4,084,211	36,543	2,417	5,622,770
Victoria ...	287,619	76,621	...	5,595	369,835
Bahia ...	190,916	80,171	1,155	1,087	273,329
	4,768,856	5,455,871	325,176	154,610	10,704,513

Of the total, exports to the United States represented 44·5 per cent., to Europe 44·6 per cent. From this it will be seen that, roughly speaking, half of the weight of the additional production of Brazilian coffee fell on the United States, a market that is not very largely interested in Indian coffee. Of course, however, depression in the States reacts in other countries and indirectly affects the prices of Indian coffee as well as those of other description.

A few more words may be said as to the quant exported from Rio and Santos. They were :—

6,318,000	bags in 1895,	realizing	£22,500,000
6,991,000	„ „ 1896,	„	£18,227,000
9,685,000	„ „ 1897,	„	£18,500,000

so that with an increase of more than 53 per cent. in quantity exported since 1895, there was a decrease of a 18 per cent. in value. Certainly, this shows a terrible in prices, and up to this point our remarks may help pessimist. But this very reduction of prices has had the e of stimulating consumption. The misfortune is that the sumer does not feel the full benefit of it. Whenever he be to do so, there will without doubt be a rapid increa demand. The depression of Brazilian prices has not accompanied by a similar depression of Indian values : there has been nothing like the fall of price pointed to i figures last quoted. The reason is that speculator Brazilian coffee in the States were, for their own purp forcing prices *down*, whereas those in Europe were hol prices *up*. This had this consequence: that the Amer demand *was* stimulated by low prices, whereas the Euro demand *was not* stimulated, because rates did not fa severely. An instance was cited by a Rio de Janeiro temporary some months ago. A well-known house at I announced the sale of Brazilian coffee at *specially c rates, six francs per kilo.* Deducting the value of the Fr Import duty, 1·56 francs, the balance of 4·44 francs kilo was equivalent to 38 *cents* per lb., whilst the coffee was being sold in the States at 8 *cents*, or a 80 *per cent. less!* The more we study the figures that available, the more convinced we are that while Amer demand has developed largely under the stimulus of prices, there has also been a steady growth of deman Europe unaided by such stimulus. No doubt, this has partially due to the expulsion of adulterated and imita coffees, but it is at least a pleasant set-off against pessim statistics of increased production.

Now, we advance beyond 1897. The most recent adv state that the Brazilian crop this year is some 20 to 25 cent. less than last. This must have an effect upon pr Something may be said of a recent circular by Messrs. W CROSSMAN and BRO. of New York, in which they led public to believe that all other estimates of Brazilian c were being deliberately put at low figures, and that were therefore unreliable. As, however, it has since pointed out that Messrs. CROSSMAN'S estimate for 1897, m so late in the year as August 27, was 1,800,000 bags *b* the actuals, there is some room for doubt as to the accu of their recent high estimates for 1898. The simple f before us are, that there have never been three large c in succession; that demand is unquestionably expand and consequently that prospects are certainly not gloo than they were a few months ago. Although we have qu statistics, we do not ask readers to rely implicitly upon figures given. Making even liberal allowance for e however, we can safely assert that the statistical positio Coffee has gained, not lost, strength of late. We may remind our friends that India is not alone in its Excha troubles. Planters in Brazil have made much mor recent years out of the depression of Currency than been made by planters in India. Yet Brazilian plan also have the troubles of a fluctuating Currency to cont with, and if at times they gain while Indian plan

lose, the reverse must happen at times. It has happened recently, for early last month there was a rapid rise in Exchange at Rio. It opened on the Monday at $7\frac{7}{8}$ and closed on the Saturday at $8\frac{7}{16}$, a rise of over 6 per cent. in, one week! This was attributed to speculation; but be the cause what it may, the effect must always be that of making the income of the planter very uncertain. Broadly speaking, the chances of a rise in Brazilian Exchange are greater than the chances of a fall. But when we find the principal industries of Brazil standing to lose heavily by an increase in the cost of production owing to extreme tightness of money, and exports checked by a very sudden rise in Exchange, we must feel that the reaction against over-production has already set in, and that the pessimism that utters dark forebodings now is at least a day "behind the fair."

PLANTING IN NORTH BORNEO.

Our North Borneo contemporary gives Coffee "a very high character," saying that wherever the berry has failed to give a good return in the island, "it may be safely said that it is owing either to neglect or errors of cultivation." North Borneo is stated to be "slowly but surely emerging from the cloud of suspicion which has hung over it as a field for profitable enterprize since the early days when bad land selection and bad estate administration gained it so unfavourable a reputation in the neighbouring colonies." *Pepper* is giving a handsome profit (to Chinese growers). The gardens opened by the Captain China at the back of Sandakan are most flourishing, and as it is found to pay well, it is highly probable, if prices are maintained, that fresh pepper gardens will be opened in the West Coast. *Hemp* is doing well, and only needs machinery to make it a most profitable crop, and the same may be said of *Rhea*. Good reports are given of *Tobacco*. The Kinabatangan estates are using fresh ground, and the prospects of good crops are decidedly hopeful, as are those of the plantation at Lahat Datu. It is expected that the estates at Marudu Bay will yield an average of from 8 to 10 piculs. On Ranau Estate there is one kongsee which expects 19 piculs per field, (for about 36 fields, 17,000 trees planted per field.) It is anticipated that Ranau will give an average of about 15 piculs, Bandau 13, Bongon 11, and Tandek 10; there are hardly any caterpillars this year, and the tobacco is expected to be of high quality. All the above estates are about half plucked and half cut. Pitas Estate expects a crop of 8 to 9 piculs (12,000 trees to the field planted) with every promise of good quality; the whole crop has been plucked, but nothing cut. Langkom also is expecting a big crop averaging about 12 piculs and is all plucked. *Tapioca* cultivated by an energetic planter, late of Ceylon, in Marudu Bay has been valued on sample at the high price of $6 and will undoubtedly pay well. There is an ample choice of suitable land, tapioca being less exigent as to richness of soil than coffee or tobacco. And we see, by the way, that the Government advertises that it "is prepared to make a limited number of *free grants* up to 500 acres of land each for the cultivation of Tobacco." So North Borneo looks like a good field, with competent stewards to encourage entries.

SIGNED CORRESPONDENCE.

[Under this head, letters, replies and remarks will only be admitted if signed by the writer. The object is to promote the interchange of opinions, experiences, etc., between planters who are willing to support their remarks with their signatures.]

MANURES.

Storage of Cattle Manure.

Sir,—In sending my last, I hoped that the cattle manure side was disposed of, but the question of storage requires some consideration. In this there is an ideal method which I cannot at present carry out: I think it should be stored under a pucka roof on a pucka floor sloping slightly to a pit for drainage; this pit should be periodically three-quarters filled with soil to take up the drainings from the manure, and when cleaned out the soil should be added to the heap. Failing this, there are three methods commonly in use:—

(1) To leave the manure in the shed, adding fresh bedding thickly every day, and only cleaning out once in three months or so.
(2) Cleaning out frequently and storing in heaps.
(3) Cleaning out frequently and storing in pits.

If bedding is used, I think No. 1 is the best, as the urine is better saved, and I have found that if the place is properly bedded, no harm is done to ordinary cattle, but during wet weather great care must be exercised in the choice and supply of bedding. Of the other two, perhaps No. 2 is best in hot weather, provided the heap is thick enough to prevent undue dryage, and No. 3. in the monsoon to prevent waste by exposure to rain. In pits in the hot weather I have found cattle manure, especially if bedded with green stuff, turn mildewy and hot; this does not seem to occur to such an extent in heaps. Villagers generally keep their manure in too shallow heaps, and sometimes it gets dried to the consistency of very old bratties. I do not quite despise bratties, but take little trouble to collect them when I have no superfluous women and children, and last year only paid three pies per bushel for the small lot I did get. I once collected a large quantity, the year of which I have at ready written, when part of my manuring was delayed, and as already said to date see no improvement in the coffee.

Of jungle soil I have said nearly all that occurs to me; a partial analysis of scrapings from *inferior* scrub may be of interest. The scrub jungle was not burnt; I think it should be.

*Organic matter and combined water	... 14·[illegible]
Potash	... ·359
Lime	... ·360
Phosphoric acid	... ·171
Silica, &c., &c.	... 64·44

The analyst (Mr. Hooper) remarks: "This is a very good soil, it contains all that is necessary for ordinary plant food." Against this I give an analysis of *first-class* cattle manure (gram fed and bracken bedded and the manure well cared for) (*Mr. Pringle.*)

Moisture	... 25·83
Organic matter and combined water	... 55·23
Oxides, iron and alumina	... 1·11
Lime	... 1·50
Magnesia	... ·86
Potash	... ·89
Soda	... ·41
Phosphoric acid	... ·55
Sulphuric acid	... ·13
Chlorine	... ·24
Insoluble matter, sand, etc.	... 13·25

* Nitrogen ·252.

Now looking at these, I do not think the latter is worth more than twice as much as the former, and it probably costs four times as much, and common cattle manure is perhaps worth no more bulk for bulk than good topsoil. In considering the cost of cattle manure, frequently no allowance is made for interest on cost and the cost of new cattle to keep up the herd, for, as a matter of fact, I have generally found that the natural increase is insufficient to keep pace with natural mortality, the death-rate amongst calves being enormous, while in an epidemic such as we get very frequently, losses are very severe. Taking all in all, I think my cattle manure costs me six pies per bushel at the shed door without any charge for the trouble and supervision; for bought manure probably one anna per bushel delivered at the estate boundary is an average price, and very inferior stuff it is at times. Jungle soil can, I think, be loaded on a cart for two pies per bushel, but my recollection is not quite clear. The subsequent cost is much the same in both cases; if there is a difference in favour of jungle soil, it is a small one.

To my brothers in misfortune who have, no spare jungle, I say, "Let us experiment;" to the others I say, "Sell all your cattle kept for manurial purposes alone, and try scrapings." And yet I must make some allowances. No man can lay down the law for another in any one detail in this country, where a short distance may make a difference quite incomprehensible to an outsider. Herein lies one of the chief difficulties in the way of a general understanding; the matter of a few miles of convenient road, a few feet in elevation, a few inches of rain, the turn of a hill, the presence or absence of competition, and many other little things may be really important factors, though on the surface they appear trifles.

ARTIFICIAL MANURES.

But, Sir, this is all trifling; the truth is that, like the small boy who wanders along the edge of the water not daring to go in, I would rather wander on about bulk manure than plunge into the cold water of artificial manuring. However, we have got the words out, let us try to get on with the matter,—making a start with the old-fashioned, time-honoured mixture of bones and poonac. This mixture was, and indeed is still, supposed to supply nitrogen and potash with a trifle of phosphates from the poonac, phosphoric acid, lime, and a little nitrogen from the bones. Now in your issue of 16th July we were startled by an extract from the *Tropical Agriculturist* giving opinions of experts that the phosphoric acid in bone manure is so inferior in its effects when compared with either basic slag or superphosphates that one can only fix the value of bonemeal by the proportion of nitrogen supplied.

This sort of shock must drive us to consider the situation very seriously. Those who put forth all such theories may or may not be cranks—we have little chance of knowing, but their writings seem to meet with attention and sometimes more or less acceptance from writers in a better position to ascertain their standing, and their theories cannot be passed over by us as disproved by practice. Here is a mixture which is generally believed to have done yeoman's service for us in past years. Has half the money been practically thrown away? A very serious question. This is the sort of point on which we may hope to be benefited by the employment of an agricultural chemist. We don't expect him to cure leaf-disease, we have fought or dodged that more or less for perhaps forty years, and are not yet reduced to such a level that we cannot go on devising means to fight or dodge it, but we cannot fight increasing competition and a 40% export tax unless all unnecessary expenditure is abolished.

Of the various kinds of poonac, my experience has but a limited range, and the choice seems to me to depend very much on the respective prices and facilities for supply; hence locality may often be a determining factor. Here I use for choice white castor-poonac, which I have found successful; the black k is also good, but it seems doubtful if the somewhat lower asked for it compensates for the inferior analysis. I refer to stuff sold by coast firms, which is generally fairly well crush In common country mill produce, I have an even greater pref ence for the white poonac. It generally contains less oil is easier to crush.

An early addition to the old mixture was muriate of pota I know nothing of this salt, and as one hears comparatively li of it now, perhaps it was not a very great success.

More recently three (to us) new manures have been somew extensively tried, the nitrates of potash and soda and superph phate of lime; but I doubt if any one in my neighbourhood well qualified by experience to pronounce a verdict. I h made considerable use of nitrate of soda, and so far have b quite satisfied with the experiment. Quite lately I have tr superphosphates, and the fields to which it was applied l remarkably well, but sufficient time has hardly elapsed for a c to be affected unless it be in the quality of that now on the tr It was not until this season that I applied the nitrate of pota With the nitrate of soda I first tried application in the weather. The result was a very fine flush of wood, which quite unnecessary—I have seldom any lack of wood; but after monsoon leaf-disease was rather severe, and it did not app that the nitrate did any good. Later, I applied after monsoon, say in October, and have every reason to be plea with the last three seasons' work. It is probably due to t that I have almost driven leaf-disease out of the one field this place which always suffered to an extent which rendered a useless incumbrance, and it seems to me that the general t of other fields has improved. Now I hear that sulphate ammonia is even more successful, and hope to read someth about it soon in your columns.

I am trying a mixture which is, I believe, the one most in by those who have abandoned bulk manuring, viz., poonac, sup phosphates and nitrates, but have not had the experiment in ha long enough to be able to express a definite opinion.

Lime is a somewhat expensive and, in its unslaked state dangerous, though on some soils very effeetive, manure; wh well slaked, that is, I suppose, turned into carbonate of lime, effects are not so apparent, as it does not then act as a solvent digestive tonic, but I imagine that most of our soils will found defective in lime as a mere constituent of the coffee t and bean, and therefore its application must be desirable. Y have already insisted on care being used in its application wh superphosphates are employed. Can anyone tell me whether same danger exists in using bones and superphosphates togethe I presume that the superphosphates would be used up bef the lime in the bones becomes freed by decomposition.

I leave coffee planting without manure to such able ponents as Mr. Nelson and "Legume," from whom, I hope, shall see something about green manuring.

Now I think that the little I can do for you in answer to yo challenge is in your hands, and trusting to meet with a con derable amount of friendly criticism which will be of gene benefit,

SEAGULLY, MUDIGERE,
15*th November*, 1898.

I am,
Yours faithfully,
(Sd.) JNO. G. HAMILTON.

P.S.—I am sorry to see from your footnote to my last th you feel no remorse; in fact, you rather seem to enjoy my wr ings. It is distinctly low to chuckle over the victim of misplac confidence. There is one small slip, probably my own. In t second column, last para., third line, "out" should read "off

NOTES.

China's Exports of Tea. Up to November 4th the exports to United Kingdom from all China ports for the current season show a comparative decrease on last season of 1,300,000 lb.

Japanese Tea. The feature of the present tea season in Japan will be a considerable decrease in production. Improvement of quality is being strenuously urged upon planters.

Tea in Norway. It is reported that tea costs 5 to 6 kroners per lb. in Norway, and "good tea" 9 to 10 kroners. The duty is 2 kr. per kilo. Taking 18 kr. per £1, we have some grand prices!

The Tea Cess in Ceylon. The Thirty Committee has suggested the raising of the tea cess from 20 cents per 100 lb. to 25 cents. If this is agreed to, advertising and foreign campaigns will no doubt be prosecuted more vigorously than ever.

The Planters' Enquiry Committee. The Simla correspondent of the *Madras Times* states that a resolution on the subject of South Indian Planters' grievances will probably be issued "presently" by the Government of India. Hope deferred once more!

The Calcutta Tea Sales. On 18th instant 22,000 packages were sold. The bidding was brisk throughout. Broken pekoes were occasionally easier. The market otherwise was firmer, especially for pekoe souchongs. Darjeelings were in strong request. A fair amount of bidding by Bombay buyers and other outside markets took place.

An Agricultural Department for Ceylon. On the initiative of the Planting Member of the Ceylon Legislative Council, the Government has agreed to appoint a Commission to enquire and report whether an Agricultural Department should be formed for the prosecution of scientific research in matters affecting tropical agriculture.

Experimental Farms in Jamaica. Coffee, kola, cocoa, nutmeg, ramie and rubber are all being experimentally cultivated in Jamaica. According to the report of the Jamaica Agricultural Society, the farms are not remunerative or even self-supporting, but they afford to neighbouring growers an object lesson in more enlightened methods of tillage.

Tea and Coffee in New South Wales. The principal item in the Customs Revenue of New South Wales was the duty of 3*d.* per lb. on tea, which should yield this year £80,000. It is now proposed to levy a duty of 6*d.* per lb. on coffee, except in its raw state, when the charge would be 3*d.* The duty on chocolate and cocoa is 4*d.* a lb., on rice £3 per ton, and on sugar £3 per ton.

The British Tea Duty. At a meeting of the Indian and Ceylon Tea Association's joint committee held in London on 1st instant, it was resolved unanimously that it was inadvisable to take any action at present in this matter in the way of agitating for the abolition or reduction of the present duty, which bears much less heavily on British-grown tea than on foreign grown.

Theft of Prædial Products. At the suggestion of the Planters' Association, the Ceylon Government lately issued instructions for special vigilance in all districts where cocoa and all low-country products are cultivated. Similar orders on the part of the Madras Government in regard to Coffee-stealing would be very welcome if issued year by year just before the opening of the crop season.

Coffee in Selangor. The United Planters' Association over Selangor way has adopted the Selangor P. A's suggestion to send delegates of the Association to Java to investigate the methods of treating Liberian coffee adopted there with a view to improving the quality of the Selangor coffee. The S. P. A. contribution to the necessary fund is to be at the rate of $5 for each member, the whole amount to come out of the general surplus, and it is hoped that the Perak and Negri Sembilan Planters' Associations will subscribe similarly.

The London Tea Market. Reporting on 17th instant, Messrs. Gow, Wilson and Stanton cabled to Colombo that the market generally was unchanged, but good liquoring Broken Pekoes were easier. Fair liquoring Ceylon Pekoe Souchong was quoted 6½*d.* and the average of Ceylon Tea 8½*d.*, as in the previous week. It appears from Reuter that 17,000 packages were sold out of 19,000 offered, and that the average was 8½*d.*, a decline of ⅛*d.* Of Indian Tea 42,000 packages were sold out of 48,000 offered, the average being 8⅜*d.*, a decline of ⅛*d.*

Budding the Mango. The *Journal of the Jamaica Agricultural Society* for October remarks:—"Budding the Mango has been generally considered an impossibility, but this is a mistake because it is done by experts in Florida, and it can be done by others when understood. The secret lies in taking the buds from about the middle of the growing shoot where they are well developed, and yet not too tender—where the colour of the bark is just turning from green to purple—and at a time just prior to a vigorous stage or growth in the tree to be budded. The shield method has been used, but I believe the ring or plate style would be better." What say growers in India?

Tea Prospects in Ceylon. The *Ceylon Observer* says:—A planter, who travels a good deal over the tea districts, reports as follows:—"Every one is complaining of the weather. The ground is sodden, aud tea is not flushing so well as might have been expected after a dry August and September. Indeed, in some districts the yield in October and November will be very disappointing. The surprising thing is that tea is not higher in price, seeing that supplies have been falling short for some time past. I am afraid wholesale buyers and distributors and other Cheap-Jack people have done us a good deal of harm in the old country if only the truth were known."

Cheap Manures. The Curator of the Botanic Gardens, Towoomba, Australia, reports that ashes and charcoal must be classed among the most natural and economic manures that can be applied to plants. Fifty pounds of the ashes of an appletree, Mr. Harding calculates, will contain four pounds of potash, which must be the substance most largely absorbed by the tree. The power of the potash to liberate nitrogen from humus is well known, and this action in making available the nitrogen in the soil is strikingly shown when land recently cleared of timber is put into crop. Wherever a heap of logs or brushwood has been burned down, there the vegetation is rank and luxuriant.

Kolingi Seeds wanted. Some little time ago, Mr. Brasier, Acting Conservator of Forests in the Southern Circle, drew attention to the utility of the plant known in Tamil as *kolingi* for purposes of manure, and recommended that manure-yielding forests should be planted with it. The names for *kolingi*, as given in the dictionary, include the Tamil varieties of *nempali, vempali,* and *yampali,* together with the Telugu *hozhinnila.* Unfortunately, however, the dictionary affords no hint as to where seed can be obtained? One of our readers is anxious to plant the *kolingi* (*tephrosia purpurea*) on a fairly large scale, with a view to using the leaves as manure, when making a compost for his coffee-plants. Can any of our readers help him with information as to where the seeds are procurable?

Colombo Tea Sales in 1897 and 1898. The *Times of Ceylon* remarks that the local average obtained by the teas sold in sale at Colombo this year and last are worth comparison. For October and November the figures this year and last were as follows:—

	1897.	1898.
October 5th	36	... 37 cts.
„ 12th	39	... 38 „
„ 19th	41	... 38 „
„ 26th	40	... 37 „
November 2nd	39	... 36 „
„ 9th	35	... 36 „
„ 16th	36	... 37 „

Though the average the last two weeks has been higher than for the corresponding weeks last year on the whole, the average to date this year is about 2 cts. lower.

Queensland wants a Coffee Expert. The Cairns Chamber of Commerce recently read a petition signed by about 30 coffee growers in the Cairns district of Queensland, urging that Gove ment should appoint a coffee expert to instruct the co growers in the matter of pruning trees and preparing crop. The petitioners asked the support of the Chamb Mr. John Cairns stated that he was assured that a co petent man was then in Brisbane. It might be w to mention the fact to the Government. On being appea to for his views, Mr. D. R. Lewis, of the Mount Grah Coffee Estate, stated that the appointment of an expert w necessary to the success of the industry. But it wa matter that required care. Coffee growing in South India and Ceylon was an entirely different matter to cof growing in North Queensland.

Tea in the United States. The *American Grocer* remarks We must recognise that the flav and strength of British-gro machine teas are so different from China and Japan t that Americans must be educated step by step up to appreciation of their merits. They are not a tea-drink people, preferring coffee and beer, which condition is some attributed to climatic conditions; but whatever cause, there is abundant promise to the persistent advoca of Ceylon and India tea that every year will see increased demand. "We may not like them at first, but w before long." Not, however, if low-grade or trashy is forced on this market. Just so long as there is merit the teas of Ceylon and India, they are here to stay. T popular taste is fickle and varies in different sectio The Eastern and Middle States prefer fermented tea; Western and South-western, green or unfermented le and it is folly to attempt to force a change in the charac of the demand, except by intelligent and persistent effor

American Trade with Brazil. Consul-Gen. Seager, writing fr Rio Janeiro to the State Depa ment, gives some valuable inform tion concerning Brazilian resources and trade with t United States. In the last three calendar years the sh ments of coffee from Brazil were as follows:—

Years.	Bags.
1895	6,910,831
1896	7,481,761
1897	10,359,765

The Consul-General traces the causes of over-producti In the ten years prior to 1897 the market price afford an extraordinary profit to the planters, and there was enormous increase in the area of coffee plantations. N these additional millions of trees are bearing. For t next year a much smaller crop is expected, because expe ence shows that there will be a light yield after two c secutive heavy ones. Recently English, Belgian and oth syndicates bought coffee plantations in Brazil. So it d not look as if present low prices had scared capitalists aw from Coffee.

Combating Malaria. The Cajaput tree (*Melalen Leucadendron*) grows in malario swamps, and contains in its foliage much antiseptic a anti-miasmatic oil. According to the late Baron Sir von Mueller, Government Botanist of Victoria, it will gr where no Eucalyptus could be reared. It attains a heig of about 80 feet, with a stem reaching 4 feet in diamet on tidal ground; it can with great advantage be utili

COFFEE SHADE TREE.

Sun-dried Erythrina Lithosperma loppings, &c., contain per ton:—

61·50 lbs. Nitrogen.
57·38 „ Potash.
14·92 „ Lime.
13·68 „ Phosphoric Acid.

Seed cured under Messrs. Sutton and Sons' advice.

Orders should be booked early for the 1898-1899 crop of seed from the parent trees of above analysis at Rs.6 per pound containing about 2,000 seeds. *Germination guaranteed.*

Only thornless variety extant, and is not procurable anywhere save from the

MANAGER, ARIENKOW ESTATE,
Shencottah.

in salt swamps for subduing malarian vapours, where no Eucalyptus will live. The lamellar bark protects it against conflagrations. The wool is fissile, hard and close-grained, regarded as almost imperishable underground, and resists the attacks of termites (white ants.) It is well adapted for posts, wharf-piles, ship building and various artisans' work. The foliage yields the well-known Cajaput oil, so closely akin to Eucalyptus oil. Mr. K. Staiger obtained on distilling the leaves as much as 2 per cent. of oil, which might be manufactured on a large scale from ample material in many parts of Australia. It is rich in cineol. Seedings can be obtained at the Kingston Public Gardens, Jamaica.

A Rival to the Lady-bird. Mr. A. v. d. Poorten lately sent the *Ceylon Observer* some leaves of Liberian coffee from Serdang, Sumatra. It appears that a large number of trees were attacked by green bugs. "Orange tips" are visible on the under-surface of the leaves, and one fortnight after the appearauce of these had been observed "all the green bugs on the plantation were dead." A planter writes:—"These orange tips are to be found on every tree where there is bug and everywhere large and small are dead." Mr. Green, Honorary Entomologist to the Government of Ceylon, after inspecting the leaves referred to, reports:—"The yellow fungus on the leaves is evidently a parasitic growth that has killed out the bugs. And it must have done very great service in checking the pest. Our local 'green bug' (*Lecanium viride*) is subject to the attack of another kind of fungus, of a greyish-white colour, which frequently destroys very large numbers of the insects; but a sufficient number always escapes to replenish the stock. I am keeping the leaf, and shall try to propagate this Sumatran fungus upon our Ceylon coffee bug. It may possibly prove a more effective check than the disease to which they are already subject."

Good Coffee. We are glad to see that in the Coffee Trade as well as in the Tea Trade good advice is being given to the consumer. A London firm of dealers, addressing residents in their district, state:—"We are in a position to supply coffee in perfection, blended from the finest Mocha, East India, Jamaica, Costa Rica, Ceylon, and other choice growths, roasted with the latest patent machinery by expert roasters. We recommend those customers who do not at present do so to buy whole berry, and grind only such quantities as are required for immediate use: suitable mills for grinding can be obtained at a comparatively small cost. There is probably no article which deteriorates so quickly as ground coffee. If the public would buy only fresh-roasted coffee, of good quality, from a reliable dealer, grind it only as required, and use without chicory, we feel sure that this article would soon vie with tea as a popular beverage. Where it is not convenient for customers to grind their own coffee, they may rely upon its being supplied by us fresh ground for each order." This is, as the *Grocer* remarks, the kind of information that the consuming public require. The wise retailer realises that buyers may be persuaded but that they cannot be coerced.

The Colombo Tea Sales. At the sale on 16th instant at Colombo about 7,512 packages= 641,548 lb. were offered, of which about 5,048 packages= 444,705 lb. were sold. There was a strong demand for all leaf teas, specially flavoury sorts, which fetched full rates, and in many instances showed an advance. Broken Pekoes were not so keenly sought after, and were very irregular and in some instances easier. Amongst the fine teas in the sale were:—Devenford, Glasgow, Naseby, Agra Ouvah, High Forests, and Iona, and amongst the low-country teas good invoices were offered from Freds Ruhe, Farnham, Rayigam, Pikande and Chesterford. The following results obtained by High Forest and Stamford Hill (Vogan Tea Co.) have been specially mentioned:—

HIGH FOREST.

				cts.
22	hf-chs.	Broken Pekoe	.. 1166	73
22	do.	Orange Pekoe	... 1012	71
24	do.	Pekoe	... 1056	54
27	do.	Pekoe Souchong	... 1161	41
95	do.	... ...	... 4395	

Average 60 cents.

STAMFORD HILL.

				cts.
33	hf.-chs.	Flowery Orange Pekoe ...	... 1650	71
15	chs.	Orange Pekoe ...	... 1350	50
8	do.	Pekoe ...	... 680	40

Average 58 cents.

One box of Digdola Estate golden tips, containing 5½lb., and one box of Flowery Pekoe, containing 6 lb., were put up for sale. The former realized R13 and the latter R3·50 per lb. One box of Hayes Estates golden tips containing 50 lb. was afterwards sold for R2·50 per lb.

LETTERS TO THE EDITOR.

THE GENUS BISON.

DEAR SIR,—I am sure Sportsmen in India would like to know the name of the recent writer on whose authority you wrote in your issue of November 5th, that throughout the whole world there are only two species of the genus Bison extant. What about *Bos gruniens*, the Yak? which occurs if not in India proper, at any rate on the very borders of it in the North.

I enclose my card and remain,

Yours faithfully,

16*th November*, 1898. GRUNTER.

MODEL FARMS SUGGESTED.

SIR,—I have read the article headed "Small Farming for Retired Planters," published on pages 488-89 of the *Planting Opinion*, dated 10th September, 1898. I am glad to state that the scheme is a proper one. In connection with dairy farming, &c., mentioned in the article, the following also may be added: Bee-keeping or agriculture, which includes the cultivation of such plants as produce flowers from which bees can obtain their honey. Pisciculture or rearing fish, which is the art of increasing the number of good fish in tanks and other bodies of water and preserving them from wasteful destruction. Kitchen gardening or the cultivation of vegetables for the table.

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NOTHING EQUAL TO THESE IN THE CARNATIC.
[2-10-98—t.f.o.]

(This branch is very profitable, especially when it is undertaken near large towns.)

Sericulture or rearing of silk-worms, which includes the cultivation of the mulberry as a food for silk-worms. These are all branches of agriculture, and may be profitably undertaken under proper conditions by the Agriculturist.

As for the necessity of this art, it is evident enough, since this can live without all others and no other without this.

Although agriculture will be subject to losses from the effects of unfavourable seasons, yet many nations have lived and some do still without any art but this. A little ground will without question, feed a little family. Farmers are without dispute, of all men the most quiet and least apt to be inflamed to the disturbance of the commonwealth. Their manner of life inclines them and interest binds them, to love peace. Modern agriculture demands professional training of a most complete character; a thorough knowledge of the first principles of agriculture is of the utmost importance to the would-be successful farmer.

Agriculture in India at present is the reverse of "Modern,"

If Indian agriculture is to be regenerated it must be by the intelligent cultivators under qualified European supervision, aided by Government funds or by the capital of the wealthy gentlemen.

As the native farmers are very ignorant and superstitious, I recollect the proverb "Example is better than precept," and my suggestion is that our State authorities should be induced to establish a small model farm with all possible improvements somewhere near the centre of every collectorate and an annual prize to be given to the holder of a well conducted Farm.

P.K.R.N.

KINASHERY,
30*th October*, 1898.

GENERAL ARTICLES.

THE U. P. A. S. I. SECTION.

[UNDER THE CONTROL OF THE SECRETARY, U.P.A.S.I.]

Inquiries concerning Mr. Consul Fraser's recent report that *Copper*, not Silver, is practically the real currency of China, have elicited some very interesting information. The British Consul at Canton states that Consul Fraser's statement is substantially correct. It is true, he remarks, that in the treaty ports dollars of various denominations are current, but merely as representing a certain recognized weight of silver of a certain touch. The prices of the necessaries of existence, such as rice and other grains, are always quoted in copper cash. The value of silver in copper cash constantly fluctuates, and these fluctuations do not necessarily follow those of the gold market. Away from the treaty ports, large sums are paid in either silver sycee or ingots, as being more portable; but this is used by weight at the current rate of copper cash for the day. The land-tax is always expressed in copper cash, though for convenience the Government accounts are always rendered in taels, *i.e.*, Chinese ounces of silver. The authority whose statements are here cited adds that, in spite of the bimetallist theory, there can be no doubt but that silver has not kept its value in China as compared with the real currency, *i.e.*, copper cash. He remembers the dollar at over 1,100 cash. Lately in Shanghai it stood at 750. Its current value at Canton on the 26th ultimo was 950, which is a high exchange. T Chinese Government has of late found itself in a diffic position. The people will not accept copper cash exc at about its intrinsic value. Accordingly, when the mar for copper goes up, a vast amount of cash is smelted a used in manufactures, causing a scarcity. The Gove ment is thus forced to coin not infrequently at an act loss. No less than seven mints have been established late years in different parts of China. These mints t out dollars to a certain extent, but more largely subsidi silver coinage, the latter giving a larger margin of pro These pieces are gradually making their way into interior, but the smallest being the 5-cent piece is of too high value for the requirements of the masses, wh daily nourishment rarely costs more than that sum. Ma attempts have been made by Chinese officials to arbitra establish a fixed ratio between the cash and silver, these have always failed ignominiously.

It is clear from this, not merely that China, thoug silver-using country, has in reality a copper currency, also that, instead of benefiting by cheap silver, she actually suffering from the effects of dear copper. H far the currency troubles of the Chinese Government worthy of comparison with those of the Government India, is a matter that would appear to deserve much m careful consideration than it has yet received.

HONEYDEW.

IN the *Bee-keeper's Record* Mr. Brice combats the idea that th either a dew or a secretion from aphides. Microscopical examinat of thickly coated leaves of Lime and Sycamore revealed not m than three or four insects on some leaves, while an hour after, insects having been removed, the beads of honeydew were decide thicker than when first gathered. He concludes that certain atm pheric conditions charge the cells of some leaves with saccha matter, which, on a change of temperature, cannot be absorbed the ordinary channels rapidly enough. As a consequence there rupture of the cells, or a copious exudation through the pores of leaf. Aphides, of course, are attracted to it, and also bees. T fact that honeydew from the Oak and Sycamore is darker than t of the Lime proves that it partakes of the nature of the tree, no the insects.—ENTOMOLOGIST, in *Journal of Horticulture*.

DAILY TELEGRAPHIC REPORTS.

LONDON.	*Nov.* 18.	19.	21.	22.	23.
Bar Silver ...	27 13/16	27 15/16	27 15/16	27 15/16	27 7/8
Bank Rate ...	4	4	4	4	4
Coffee—					
Nilgiri, ave. (B) siz.	65	...	65	65	...
Mysore „ (B) „	75	...	75	75	...
Wynaad „ (B) „	64	...	...	...	...
Middling Ceylon	103	...	103	103	...
RICE :—					
Stock ...	...	...	... 17,442 tons		...3,950
Week Landings ...	...	...	...	...	... 100
Do. Deliveries ...	...	...	...	...	... 400
Fortnight's Landings	...	...	... 800 „		...
„ Deliveries	..	...	... 1,500 „		...
NEW YORK.					
Coffee—Fair Rio ...	6 1/8	6 1/8	6 1/8	6 1/8	6 1/8
Futures, Feb.	5.26	5.24	5.27	5.30	5.33
Silver—Comml. Bars	60 3/4	60 3/4	60 3/8	60 3/4	60 3/4

MILLIE & REDMOND, late P. THOMPSON & CO., *Ootacamund, Engineers and Contractors.*

THE DURABILITY OF WOOD.

There appears, says the *Planter*, to be no doubt but that the durability of wood is affected by its position. The problem has puzzled many why two pieces of wood, sawn from the same section of a tree, should possess very varied characteristics when used in different positions. For example, a post will be found to decay much faster if the butt-end of the tree is uppermost than would be the case if the top was placed in this position. The reason is that the moisture of the atmosphere will permeate the pores of the wood much more rapidly the way the tree grew than it would in the opposite direction. Microscopical examination proves that the pores invite the ascent of moisture, while they repel its descent. To make the meaning more clear, take the familiar case of a wooden tub or bucket. Many have doubtless noticed that some of the staves appear to be entirely saturated, while others are apparently quite dry. This arises from the same cause, viz., the dry staves are in the position in which the tree grew, while the saturated ones are reversed. This is a point worth bearing in mind.

ACTION OF ELECTRICITY ON GROWING PLANTS.

Professor S. Lemstrom, in the Physical Science Section of the British Association, recently described a series of experiments on "The Action of Electricity on Growing Plants." After a brief sketch of previous experiments on the subject made in 1885 and 1886, he referred to the researches he carried on last year in the Estate Bridtorp with the friendly assistance of Baron Edward Hisinger, the proprietor. In general there was found in increase in the seeds of at least 40%, and the roots from 25% to 75%, depending on the kind of plant and on the nature of the soil. The experiment proved, among other things, that electricity given to plants during days when there was a clear burning sun might damage them very much if enough water was not also given at the same time. Discussing in what way electricity exerted an influence on plants, the author said that either the gases in the air were transformed to ozone and nitric oxides, which, being heavy, fell down upon the plants and increased the activity of their vegetation, or the electricity induced the juices of the plants to ascend more rapidly in their capillary tubes. Though much has yet to be explained, the method is ready to be used for practical purposes. Of experiments carried out in Finland this summer, the tobacco plant did not yield, in the earlier stages, to the favourable influence of the electric current, through want of water; but when watered and under the influence of the current, the results were about 40% better than without it. The current was applied for four hours in the morning and four hours in the afternoon, with many interruptions, however, from June 17th to July 30th. The total number of hours was 161.—*Produce World.*

COFFEE IN NORTH BORNEO.

We are glad to see that the *British North Borneo Herald* is not among those that take a pessimistic view of the prospects of Coffee. It says:—

"As regards coffee, we have always maintained that the alarming 'slump' in the home market would not be of a permanent nature. Recent home advices show that there will be a shortage in Brazilian and other exports, and although it will probably never again touch the high prices formerly ruling, it will still continue to pay careful and economical growers."

With reference to the progress of Coffee Cultivation in North Borneo, our contemporary remarks:—

Taritipan estate promises a higher yield than that of last year, in spite of the drought in last September and October which told so heavily against the trees then in heavy crop, and spoiled the chance of January blossom. This year's rains have better suited the cultivation. And Mr. Schuck expects that the 1899 yield will be about 900 piculs, which, as the price of Liberian coffee will probably be higher, should yield a handsome profit. There is by the way a very good chance of acquiring a well-planted coffee estate not far from Sandakan, as its elderly Chinese owner wishes to return to his native country, and but few of that nationality can or will go in for extensive planting. Wherever coffee has failed to give a good return, it may be safely said that it is owing either to neglect or errors of cultivation, and we hope before long to see this industry in a more flourishing condition.

INDIA-RUBBER IN CEYLON.

In his address to the Legislative Council on 7th inst., the Governor of Ceylon said:—

"The planting of Para rubber has gone on in the low-country, and the price of seed has risen very high in consequence of the great demand. Mr. Willis reports as follows:—'This bids fair to be a very valuable crop for suitable districts. A circular was issued in the early part of the year by this Department, giving details as to cultivation, yield to be expected, &c. Since that time the subject has been gone into very fully by Mr. Parkin and myself. Mr. Parkin is elaborating a very perfect method of coagulating the milk, which yields very good results at small cost. There seems every reason to believe that by the aid of the process the cultivation will prove sufficiently profitable to attract planters to take it up. The whole question of rubber cultivation has, however, assumed a new aspect in consequence of the discoveries of Mr. Biffen of Cambridge. By the aid of a machine on the principle of the cream separator, he can in a few minutes obtain the pure caoutchouc from the milk of any species of rubber tree, and the product thus obtained is practically identical, whether got from the Para, Ceara, or other species. The best results are perhaps obtained from the milk of *Castilloa elastica*, and it thus becomes a question whether the planting of this species should not be taken up in Ceylon in the dry parts of the hills, where Para rubber will not grow. The next few years will, I feel sure, produce remarkable developments in the rubber industry, and I should not be surprised if Ceylon were to become an important centre of it.'"

MANURE.

The Village Cultivator.

The *Planter* seems to think that Government will succeed in doing something in the matter of teaching the village cultivator how to improve his lands. We have our doubts: but, anyhow, this is what our contemporary says on the subject:—

The subject of the supply of manure in India is one with which the village cultivator is intimately connected. There is a great deal of evidence, both scientific and practical, to prove that Indian soils are uniformly very poor in two all-important particulars, namely, humus and nitrogen. There is the indisputable evidence of Dr. Voelcker as regards the poorness of Indian soils, that, whether exhaustion is in progress or not, their fertility is at a very low ebb. Close observation of the wages and methods of the village cultivator in all parts of India shows that but little care is bestowed by him in the conservation of the manure which he has ready to hand. For instance large quantities of cattle dung are carefully dried for fuel; the urine is wasted; there is no properly organised system of getting the night soil and other refuse matter on to the land. In these respects, it is palpably evident to every inquirer that a most serious loss is constantly occurring, and it is only reasonable to conclude that no cultivable land can be brought to anything like a high state of fertility when local conditions are so unfavourable. It is, therefore, a wise provision of the Government in the Agricultural Department to teach the ryot, by simple methods, how to turn his land to profitable account, and this is being done with persistent energy, so that we may look in the not distant future for results which will materially improve the present impoverished condition of the village cultivator.

TEA IN NATAL.

The *Natal Mercury* says:

"Five years ago one of our local tea planters stated that the acreage of tea in Natal should supply the requirements of the whole of the tea-drinking population in South Africa, and that within the next two or three years considerable quantities would be exported to London, where the success of Natal teas would have to be proved. The manner in which the trade statistics of the Colony are compiled makes it impossible to say how much Natal tea was actually exported, or where it was sent to, but in any case the local product has not as yet made a name in the London markets, nor is it yet exported in considerable quantities. Apart, however, from either the London or other foreign markets, there is a very big market in South Africa,

which has hardly yet been touched. During 1896 the Cape imported 3,000,000 lb. and Natal 1,148,000 lb., so that we are sure we are under the mark in saying that there is a market in South Africa alone for at least 5,000,000 lb. of tea, and in this market the Natal producer has advantages that neither the Ceylon, Indian, nor Chinese growers have." Our contemporary does not appear to think, however, that Natal is yet in a position to supply the markets opened up to it on such favourable terms. The *Mercury* urges the establishment of Planters' Associations with a view to the organization of schemes for developing the industry. It concludes:—"We have written in no spirit of depreciation of the industry. All honour to those who introduced it, and to many who amid difficulties have laboured to make it a success, but we cannot say honestly that after twenty years it has made the progress expected, nor that it has expended as fully as could be desired. Of late there have been signs that an era of improvement in the quality and the quantity of the tea produced has set in. The widening of the protected rea has been long desired by the planters. They have virtually got it enow and it remains to be seen whether having got it they will tak the advantage of it the colony has been led to expect, and so develop the industry that, like Ceylon, they will be able to go over the sea and enter the world's markets in open competition with all comers."

A FRENCH "KEW."

ACCORDING to the London correspondent of a contemporary, France intends to "take its cue" from England and establish a Gallic Kew Gardens. The account as to how this came about is amusing. It opens by referring to a note in the *Westminster Gazette* in which the Kew authorities are made to take a very lofty standpoint indeed as regards the introduction of British grown teas.

Some Frenchman has been interviewing the people at Kew it appears, and was so impressed with what he heard as to the part Kew had played, that he confided the result of his investigations to M. Trovillet at Paris, with the result that almost the last act of that Minister before leaving the late French Cabinet was to institute

A BOTANICAL GARDEN IN PARIS

for the experimental culture of coffee, tea, rice, cacao and other tropical products. His informant assured him that as a consequence of the experiments at Kew the exports of tea from India rose from twenty-three pounds in 1873 to the 200,000,000 lb. estimated at the present day. Now whether the Frenchman mistook the information he received, or Kew bungled the information it imparted, present deponent knoweth not, but it is plain the twenty-three pounds in 1873 must refer to the tea first sent from Ceylon in that year, for India's contribution ran into three figures at the least by that date, and if I am correct in supposing it is the Ceylon historic twenty-three pounds that are meant, then the French observer is in deeper water than before, for that tea was not made in consequence of any information or instructions from Kew, but as a result of an investigation carried on in India at, if I remember aright what I have heard, the instance of the Government of Ceylon on the one hand, and the Planters' Association on the other. Therefore, where Kew comes in is rather hard to make out, and anyhow if the French Government think they will introduce tropical industries into their colonies by showing in Paris how it can be managed, I am afraid they will meet disappointment. Half a dozen hard-headed colonists on the spot will beat twenty experimentalists at home, and in so saying I am not meaning to undervalue Kew, which has done plenty good work, even if the education of the Indian tea planter is hardly to be included in the category.

"ASSAM HYBRID."

IN reply to the question: "Assam Hybrid"—is the term a misnomer and is there such a thing as a hybrid in tea? a planter writes to our Calcutta contemporary *The Planter*:—

The term is a misnomer, and there is no such thing as a hybrid in tea. It may be considered a rash statement, but I have satisfied myself as to the fact. The popular idea is that the "Assam indigenous" is one plant, and the "China" another, and that these two species having been planted in close proximity have hybridised, the resultant being a hybrid called the "Assam Hybrid." Now, we must bear in mind that hybrids are extremely rare thi in Nature, and, where hybridising does take place, it is by artifi means. Bees and insects of various kinds are said to carry pollen from one flower to another, but who taught them to carry their work of hybridising so systematically, and carry the po from the China to the Assam? Why not from the Assam to China? If in the former case, the Assam crossed by the Ch results in "Assam Hybrid," in the latter it would be "Ch Hybrid." "China" hybrid is a term used, but is not got in t way,—it is used to indicate a low *jât* of plant.

Is it not natural to suppose that, if the Assam deteriorates being crossed by the China, the China would be improved by be crossed by the Assam. This, however, is not the case: no impro *jât* is ever the result. Therefore, it is no hybrid. I have had portunities of tracing the seed from the indigenous trees growing the jungle down to the lowest *jât*. It runs on a downward sc Seed from the indigenous produces a fine plant which we will No. 1. Seed from No. 1 produces a plant slightly inferior, which will call No. 2. No. 2 produces a plant inferior to it again, and so until you get down to a *jât* of the lowest description. Planters do admit that the plant they are growing is not a hybrid, but I th most of them are cognisant of the fact that the plant does deterior and that seed from one *jât* always turns out an inferior *jât* to parent. Having settled which of the different grades of the pl is the one to grow, secure seed not from the *jât* of plant you wa but from the *jât* above it which produced that plant. Of cou there are places which from want of cultivation, unsuitable soil, some other cause, show a *jât* which might be anything.

COMMERCIAL FRUIT-GROWING.

THE series of lectures on horticulture, projected by the Agricul ral Department of Victoria, Australia, was inaugurated on 1 September last, when Mr. C. B. Luffmann, Principal of the Gove ment School of Horticulture, Burnley, lectured on the subject Commercial fruit-growing. There was a large attendance. Luffmann, in the course of an interesting lecture, said that fru growing was not a thing to be picked up in a haphazard way. was a precise art, and there were commercial laws which had to mastered if anyone hoped to rise through his labours in that dir tion. He must begin at the beginning, go steadily, and in prop tion to his resources. He must apply himself to understanding t first principles of his business. He must not experiment. Expe mentation was for those who had made money, or for those w might be termed wealthy amateurs. As to fruit growing, it co be said that failure at this occupation could generally be traced want of capacity, either through lack of knowledge or of indust The climate was favourable to the production of high quality fr provided there was the capacity and industry to help that quali A tree had not merely to be stuck in the ground in order for it grow. It had to be "planted" and cared for systematically. Th as to the quality of fruit, the majority of people did not kn quality. They took bigness for that virtue, whereas it was n They must have precise knowledge of the way to prune trees keep up the supply of wood, to cut back, and so on. Prunin hybridising, &c., were not, as some thought, the outcome of a sub form of genius. Rapid growth in trees was weak growth, and th must also understand whether there was a permanence in the t which would be profitable. In some districts there were permane soils, but in other districts the soil had been cultivated to exha tion, and other causes combined to make the tree arrive very quic at maturity. For that reason these areas would have to be co nually replanted. There was much to attract the young people this colony to the soil, and at present we were doing a very wr thing in having nearly half our population centred in two or th towns, instead of developing the resources of the soil.—*Ind Gardening*.

GROUND "COFFEE."

IT is tantalising to think of what the consumption of Coffee mi be as compared with what it is. Advertising and canvassing is l wanted than honesty. It is adulteration that lessens the dema Coffee. It has a twofold effect: (1) it deprives the product of

reputation, for a decoction that should be fragrant and comforting if made from pure Coffee is not so when made of the adulterated stuff sold under that name; and (2) it lessens the offtake of Coffee by substituting something else under its name. A few examples will suffice to show the variety of adulteration that is still practised. These are taken from the report of Professor Cochran to the Department of Agriculture at Washington on his analyses of a large number of samples of "ground coffee" and "ground-coffee compounds," selected in Eastern Pennsylvania. Here are some of the "compounds" that are sold as *Coffee*:—

"Composed of bran, cracked wheat, and a little caramel; chiefly wheat-bran sweetened and roasted."

"Sample bears about the same relation to coffee as wheat screenings do to wheat."

"Roasted sweetened wheat, 75 per cent.; coffee, 25 per cent."

"Composed of the roasted and rather finely broken grains of wheat and barley."

"Sample is composed chiefly of wheat bran."

"Composed of roasted cereals and husks of cocoa-beans."

"Coffee, about 64 per cent.; pea hulls, 13 per cent.; and chicory, 23 per cent."

"Sample is roasted rye."

"Sample is roasted barley."

"Sample is composed of wheat, chicory, coffee, and peas coarsely ground."

"Composed of peas, about 69 per cent.; grains, 29 per cent.; and chicory, about 2 per cent."

"Sample is composed of bran, cracked wheat, chaff and caramel."

"Sample is composed of wheat, chicory, coffee and peas, all coarsely ground."

"Of all the samples examined, but four were found to be composed of pure coffee, and of these, three were pronounced to be of "very inferior quality."

SIR JOHN LUBBOCK AND INDIAN CURRENCY.

ADDRESSING a meeting of bankers in Dublin on 28th ultimo, Sir John Lubbock discussed the Indian currency question. The difficulties of the Indian Government, he said, were due, not to a fall in exchange, but to a fall in silver. A stable exchange was no doubt desirable, but it was still more desirable to maintain a sound currency and a satisfactory standard. He suggested that the Government should impose a duty of, say, 6*d.* per ounce on silver imports, with 1*d.* seigniorage on the silver coined. An import duty on silver would not only bring in a substantial revenue, but it would increase the demand for Council bills and diminish the difference in value between coined and uncoined silver in India. It was not beyond the range of practical politics that with an import duty and a seigniorage the value of silver in relation to gold would be such as to enable the Government of India to reopen the Mints, and thus secure once more the inestimable benefit of a sound and satisfactory currency.

* * *

Sir John Lubbock's contribution to the Indian currency discussion is well timed, says the *Financial News*, for the sittings of the Committee are to be resumed this week. Sir John is a representative gold standard man, and he is completely out of sympathy with the proposals of the Indian Government. It is impossible to have a gold currency in India, and Sir John Lubbock, like most sensible people, revolts against a standard of one kind and a currency of another. He dismisses the notion of transforming the whole of the existing circulating medium into token currency and creating the fiction of a gold standard; for Sir John Lubbock is not fond of fictions in such serious matters as currency. The worship of a stable exchange as the be-all and end-all of Indian monetary policy annoys him; for it is a means only, and not an end. If stability in exchange is attained at the expense of trade and industry, it becomes an evil instead of an advantage. In vain will the Indian Government, and those who believe in its nostrums, seek a syllable of encouragement from Sir John Lubbock. He speaks of the great responsibility of watching the hocus pocus standard now in operation, and says it is the sort of responsibility no Government should desire to undertake. He points to the two concomitants of a restrictive currency policy—the encouragement of illicit coinage and the tendency to "disestablish the Queen's head" by the substitution of bullion for coin in certain operations. Sir John Lubbock can see no necessity for melting down rupees or raising a loan so as to hoard the proceeds in gold. For every step taken or proposed by the Indian Government with reference to the currency Sir John entertains the most thorough contempt, because all of them have smacked of artifice.

COCOA DISEASE.

IN our last issue we gave certain brief rules regarding the treatment of Cocoa disease, which are to be circulated in Ceylon, in Cinhalese and Tamil, for the information of Native cultivators. The following prefatory remarks, drawn up by Mr. Carruthers, are to be printed with the rules:—

The cocoa disease is caused by the presence in the tree of a fungus. A fungus is an extremely small plant, and in this, as in many other cases, it lives in another plant, and gets all its nourishment from the sap of the other plant. The fungus consists of two parts: 1st, the *mycelium*, or roots, which are small threads, too small to be seen with the naked eye, and which run through the tissues of the cocoa tree, and 2nd, the *spores* or seeds which spring from the mycelium; the spores are very small indeed; several millions, one layer thick, would only cover a ten-cent piece. If these spores alight on a cocoa stem branch or pod, in damp atmosphere, they will grow and produce another canker spot. The canker in the bark can be seen, as a rule by a darker patch, and by drops of red-coloured fluid exuding, and when the dark outer skin is scraped off, the place will be seen to be quite brown or red-coloured and moist and slimy. In the pod it makes the part where it is brown or blackish-brown. The spores are in white or pink masses on the surface of stem and branches, and of all sizes, from what can hardly be seen to three or four times the size of a grain of rice. If the dark patches are allowed to remain in the tree, they will spread and kill it, and form many millions of spores which may attack other trees. The cutting out—if the disease has not gone too far—does not materially injure the tree or its bearing qualities; and it is no use to keep diseased pods on the tree, as directly they have a spot of disease, the seeds no longer in crease in size or ripen, but begin to deteriorate. When the trees are diseased suckers should be allowed to grow.

RULES FOR CURING DISEASE

In the Bark.—Cut out all discoloured tissue and two inches all round it.

In the Pods.—Take off all pods with any trace of disease. (The small pods of an inch or so in length are generally not diseased, but dry up from want of nourishment.)

Burn all parts cut out and all diseased Pod Husks.—In cases where burning is quite impossible, bury the bark and pods deep. Lime put on them is advantageous. (Signed) J. B. Carruthers, F.L.S., Cryptogamist to Ceylon Planters' Association, November 18th, 1898.

TEA IN GERMANY AND RUSSIA.

IN the opinion of our Consular representatives there is no doubt that the taste for tea is fast increasing in Germany. It is, however, at present confined to the wealthier classes. From the fact that tea as at present sold retail, to be at all palatable, is extremely high in price—these teas being mostly caravan* teas imported from Russia, and ranging from 6 to 10 marks (5*s.* 11*d.* to 9*s.* 10½*d.*) per lb.—it is suggested that there is an opportunity for the introduction of Indian and Ceylon teas to the German market. In the first place because they are cheaper and better than that at present obtainable, and secondly, because as the taste is, so to speak, in its infancy, the liking for the more highly-flavoured growth of India may be easily introduced. The cause of the retail price being so high is said to be the very limited demand and the length of time that the tea is kept in stock before being sold, but if a good tea at a reasonable price could be put on the market, with a satisfactory agent to push it, the business might soon find considerable extension. The duty on teas is charged

[* The so-called "caravan" teas are probably mostly quite ordinary leaf, passed off as genuine overland.—ED., *P.O.*]

at 50 pf. (6*d.*) per lb. as per chest, allowance being made for the wood and lead wrapper. Thus a good tea could be introduced at a retail price of 3 marks (2*s.* 11½*d.*) per lb., or even less, with a considerable profit to the merchant. The Consul at Stettin says the tea at present sold there at 3 marks (2*s.* 11½*d.*) per lb. is not fit to drink, and "it is doubtful whether it is tea at all." In Russia Odessa is stated to have become the centre of the tea trade. Shipments used to be made *viâ* London, but latterly tea destined for Moscow and other towns has been largely stored at Odessa. China teas are imported in ships of the Volunteer Fleet, which has now practically the monopoly of the tea carrying trade from China. The total imports of tea into Russia last year, including those entering the country over the Asiatic frontier, were estimated at about 40,330 tons. The trade in Ceylon tea in Russia, gauged by the quantities imported, has increased very much of late, both as regards direct shipments, chiefly to Odessa, and those *viâ* London. The importance of this growing market and the necessity of understanding its conditions are now recognised in Ceylon, and a member of the Legislative Council of that island was appointed at the end of last year as a commissioner to visit Russia, inquire into the circumstances of its tea trade, and report. The very high import duty charged on all tea entering Russia is felt to be the chief obstacle which stands in the way of increased consumption. The shipments of Ceylon tea to Russia (almost entirely to Odessa) were 439,350lb. in 1897, while from London 1,578,390lb. were imported. But these figures do not represent the total importation of Ceylon tea into Russia, as much that is shipped to Germany is really destined for transportation to that country. —*Grocer.*

THE NEW YORK TEA MARKET.

MESSRS. JAMES AND JOHN R. MONTGOMERY & Co. report the following statistics of tea for United States and Canada. The total includes all sorts :—

	Pounds.
Total afloat to October 1st, 1898	7,110,921
Receipts to October 1st, 1898	30,346,401
Total shipment advised by mail	37,457,322
Leaving to be shipped	46,292,678
Estimated supply, seasons 1898 and 1899 ...	83,750,000
Supply, seasons 1897 and 1898	87,711,780
Afloat, October 1st, 1897	11,334,026
Total shipments advised by mail to Oct. 1st, 1897 ...	51,981,621

At the auction sale by the Montgomery Auction Company on October 5th, 4,029 packages were sold. The new Greens brought low prices, but good figures as compared with recent prices obtained for old crop. The foregoing is from the *American Grocer* of the 12th October—that friend of British-grown teas—and details of the auction follow; but they contain no reference to Indians or Ceylons. Then comes the subjoined table, with its instructive concluding line, which shows how the market in the States has "gone to pot" :—

IMPORTS—TEA.

Year ending June 30—	Net Imports Pounds.	Value Dollars.	Av. Import Price, ¶ lb. —cents.	Per capita Population Pounds.
1880	69,894,769	18,983,368	27·4	1·39
1881	79,130,849	20,225,418	25·7	1·54
1882	77,191,060	18,975,046	24·6	1·47
1883	69,597,945	16,278,894	23·5	1·30
1884	60,061,944	12,313,200	20·2	1·09
1885	66,374,365	13,135,782	19·5	1·18
1886	78,873,151	15,485,265	19·6	1·37
1887	87,481,186	16,365,633	18·7	1·49
1888	83,944,547	13,154,171	15·8	1·40
1889	79,192,253	12,561,812	16·0	1·28
1890	83,494,956	12,219,643	15·0	1·33
1891	82,395,924	13,639,785	17·0	1·29
1892	81,610,741	14,267,411	16·0	1·37
1893	88,131,088	13,651,800	16·0	1·32
1894	91,801,565	13,857,893	15·1	1·34
1895	96,437,042	13,029,868	13·5	1·38
1896	93,340,248	12,585,741	13·5	1·31
1897	112,907,548	14,737,062	13·1	1·55
1898	67,696,339	9,608,252	14·2	0·91

TEA CONSUMPTION IN GERMANY.

MR. OTTO WESTPHAL, a partner in Messrs. G. W. A. West Sohn & Co., of Hamburg, writes to the *I. P. G.* :—

In the issue of your esteemed paper of September 24th, H M.'s Consul in Stettin reports on tea consumption in Germany very incomplete information.

In Stettin there is no real wholesale tea trade, and less tea is sumed in the environs than in many other parts of Germany. British Consul, even admitting (which I do not) that his statem are correct, as far as Stettin is concerned, errs if he applies remarks to Germany in general.

As to caravan tea, many retailers flattering an old prejudice of public sell their tea under this flag. The import of tea from Ru into Germany is quite insignificant, and probably there is no caravan tea among it; fine teas are no longer sent by caravan. markets which supply Germany are Hamburg and Bremen.

It is a mistake to say that the retail price for tea in Germ ranges from 6*s.* to 10*s.* per lb; even 6*s.* a pound is very seldom out for a pound of tea. In Hamburg a good tea is sold at 1/5½*d.*, in every place worth mentioning a very fair quality can be bough 2*s.* a pound.

Now as to Indian tea, the German tea trade in general, and firm specially, take a great interest in the introduction of Indian and I am glad to say with increasing success. Blending is com more and more in use in Germany, and for such purposes Ind especially very flavory Darjeelings, are much liked. The majo prefer them to Ceylons.

In my opinion and experience it would be a fatal mistake to fol the British Consul's advice to send a competent man to Stettin push Indian tea. In the very same way as in England and elsewh Indian tea must make its progress on the Continent by being in duced in blends. The English public always liked a strong tea; they began by mixed Indian to China produce. The German t prefers a flavory, mild beverage; our countrymen and countrywo therefore, are less inclined to adapt their taste to Indian tea. Continental consumer will not allow the latter to be forced u him; he must be flattered into the use of Indian-grown tea. T requires time, and the representative whose presence in Ste desires will not be able to do much within the short time which be at his disposal.

Advertising tea is a bad job in our country, where the consump is still small (in that the British Consul is right). A Koenigsberg in former years and a prominent English dealer some time ago tur to advertising in Germany, but both gave it up again disguste the poor result.

If the Indian tea-growers wish to foster the German market, t need only do what will attract all the Continental and Colo buyers: "Stock the Calcutta auctions well with a good variety faultless teas, and if possible bring down the carriage, selling shipping charges in Calcutta."

Besides this, the visit of an agent of the Indian Tea Associat might, of course, do some good, and I shall be very pleased to come the gentleman in Hamburg and to co-operate with him.

ECONOMIC BOTANY.

IT was Victor Hugo who placed the beautiful before the use But this is a utilitarian age, and it must have struck those who t note of the "signs of the times" that the trend of modern thou is in the direction of combining the *utile* with the *dulce.* Thi specially noticeable in botany and horticulture. When Cato r Rome, he imposed upon each Roman citizen the duty of cultiva flowers in his enclosure, so that elegance and culture migh imparted to the manners of the people. It was Pliny, however, was the first to make a catalogue of the plants of the Ro Empire of his day: at least, we have no other record before this far as we have been able to glean. Charlemagne, though a g soldier, had an eye to the *utile,* and in his Capitularies gave a lis the vegetables to be grown in his garden. We are led to th remarks by the perusal of an interesting address to garde delivered by Alphonse de Lamartine, in the course of whic pointed out that the art of gardening—first sketched out by Romans, universalised and brought to a prodigious state of pe tion in China, enlarged in England to the proportions of an ari cratic luxury, depreciated and strained in Holland to the poin

adoration of the tulip, raised in Italy to the dignity of a splendid art in association with statuary, sculpture, and architecture, utilised in France by its alliance with high agriculture, of which it is the enlightener—at last reaches in several parts of Europe the condition of an industry, employing millions of hands, and importing and exporting millions of fruits and flowers. Thus gardening, which was hitherto a recreation, a domestic luxury, a decoration of the earth, is becoming a new and magnificent subject of commerce at a time when work fails man rather than man work; at a time when the notion of an industry is the inventien of a source of wealth, is the invention of an occupation, of a livelihood for thousands of workmen.

Upon the litoral of the Mediterranean there is a very large coasting trade done in flowers. Tuscany and the State of Genoa cultivate and export to the value of several millions the produce of their ocwerbeds. But one art has begotten another. After the art of their cultivation has come the art of harvesting, assorting flowers, flours, shades, scents. This art has made much progress at Genoa, for instance, to such an extent that roses, carnations, dahlias, tulips, oanunculi, have been studied, combined, interwoven, plaited, that bouquets intended for the table at festivities, often more than a yard in circumference, resemble Smyrna carpets, vegetable fabrics, perfumed velvets, mosaics of vegetation. Veritable weavers weave these perfumed tissues. The bouquet-makers there, as at Athens, form a profession by themselves. The bouquets admired at the *fêtes* of Toulon, Marseilles, even Paris, have often been woven at Florence or Genoa. Thus luxurious gardening becomes more and more an industry. Go on perfecting it, said the lecturer, and it will become a new art, a painting, of which the palette will be a garden.

Our Botanic Gardens, which were once merely the repositories of rare plants brought together from all parts of the globe, are now being utilised, to a certain extent, for the study of economic botany; indeed, this department will have to be greatly developed in the near future if these gardens are to keep abreast of the times. The mere fact of having a unique collection of plants, and their conservation, will not satisfy the public. A beginning has been made in this direction at Kew, Ceylon and Calcutta, and this section will doubtless be largely developed in all the Government botanical gardens scattered throughout India. This is a country of vast economic resources; her vegetable products are perhaps more numerous and varied than that of any other country in the world. We know practically nothing yet of her vast range of vegetable fibres, medicinal plants, colour-yielding plants, *et hoc genus omne*. Our investigations will have to be directed into channels left hitherto unexplored. We are continually receiving valuable economic plants from other parts of the world for cultivation or experimental purposes; whereas, had we known the economic value of the plants of the same genus we have in the country, a lucrative trade might have been established long ere this. We could give several examples of this, but two will suffice, namely, the Soy Bean and the Florida Velvet Bean. We have the counterparts of these out here, but of whose valuable properties we have known nothing. Again, we are experimenting with Para and Ceara rubber trees when we have the finest of all rubber-yielding trees—the *Ficus elastica*, growing as a great forest tree in nearly all parts of the country. The *Cryptostegia grandiflora* is another rubber-yielding plant, growing wild everywhere, to which we are only now directing attention. We might go on citing examples, but we think we have said enough to show that what we want in this country is the study of economic botany, a subject which should be made compulsory in every school and college in India, so that in a few years we should have a large number of young men specially trained to investigate and discover new sources of wealth in the vegetable kingdom. Every botanic garden should have a number of such students attached thereto for the purpose of receiving a practical training in economic botany. We should then be able to produce men who understanding the country, the flora and the people, would soon develop the vast natural resources of India. —*Indian Gardening.*

TEA MAKING FOR QUALITY.

[By A. Cooke.]

We take the following excerpts from an article by Mr. A. Cooke, Manager of the Chota Nagpur Tea Company in the *Planter:*

Since I came out (end of 1874) I would roughly divide the "paying leaf into periods as follows:

1874	to 1880	5	leaves on a shoot, average.	
1881	„ 1890	4	„	„
1891	„ 1896	3	„	„
1897	„ ——	2	„	„

I do not say that the average leaf of 1874 to 1880 was "five leaves,' but during that period this extremely coarse plucking would have paid expenses.

As the quantity of tea increased, the quality was improved by finer plucking. In spite of the finer plucking and improved appliances for manufacture, we have noted an unceasing discontent on the part of the brokers, and we must interpret this to mean that the quality as supplied by the planter has not quite kept pace with the quality demanded by the consumer. . . . The bulk of British tea has to become of finer quality. And the *ultimate* price has to come down to six pence. . . I myself have made a speciality of my Orange Pekoe, which has risen about three annas per pound during the last four years. I have taken care to protect it in the sorting, but the chief reason of the improvement has been finer plucking. I imagine that this tea has gradually become known to a greater number of buyers year by year and so raised its price because of the competition between them. . . The problem now is "how much fine leaf" can be got off a garden, and not "how much weight of leaf." It certainly must be a greater strain on a bush to take the utmost weight of fine leaf, because this can only be attained by a greater number of shocks (pluckings); but this may possibly be counterbalanced by giving more rest, or by reducing the pruning, or by liberal manuring. I believe that the roots do not suffer, if the bush is allowed a fair number of leaves to send sap back for the formation of bark and wood, *until they exhaust the food in the soil.* Given sufficient growth, they will continue to supply fresh leaf, although this fresh growth is constantly plucked off. For the purpose of feeding the bark and wood, I think it necessary to leave unplucked all the shoots which go *bhanji.* And following the same line of argument it is probably politic to let the bush *have its flowers and seeds* if it produces any. The production of flowers is a sign that the bush wants a rest from leaf-giving;—let it have its rest. Plucking-off the flowers would stimulate the bush. Take flowering and going *bhanji* as a sign that the bush wants a rest or wants richer soil. Give either the rest or improve the soil. . .

With a view to getting the most fine leaf, year by year, without a break, I think the most important point is to establish a system of cutting out old branches each year, so that the bushes need *never* be cut down. I have entirely stopped cutting down on this garden, and my best plots are those which have not been cut down for ten years at least. After each pruning I send round a separate gang to cut off useless branches.

Obviously the greatest hindrance to fine plucking is the amount of labour required. Last year I plucked off ten shoots of three leaves and a bud. I weighed these with the seeds of the liquorice plant (which are of every uniform weight). The 10 shoots weighed 95 seeds. I separated the 3rd leaves and 10 of them weighed 47 seeds. The bud and two leaves weighed 45 seeds. This shows that a cooly, plucking three leaves and a bud, would get in more than double weight by the same amount of work as she would if she plucked only two leaves and the bud. But it is quite certain that at the present time tea of three leaves would not pay as well as tea of two leaves.

Three-leaf tea. 1,000 maunds, sold at Rs.20 ...		Rs.20,000
Less cost of plucking, manufacture, boxes, freight, &c., Rs.12	„	12,000
Balance	„	8,000
Two-leaf tea, 500 maunds, sold at Rs.30 ...	„	15,000
Less cost as above at Rs.12	„	6,000
Balance	„	9,000
Two-leaf tea of finer quality, 400 maunds, sold at Rs.40	„	16,000
Less cost of as above at Rs.12	„	4,800
Balance	„	11,200

In my own case I have improved the quality of my leaf from year to year, and have managed to keep the average price within two pice. I have improved my bushes, but instead of increasing the yield I have kept it on one level and plucked finer.

I recommend this policy strongly to the bulk of British planters (*i.e.*, Indian and Ceylon). And I have endeavoured to show how it may be possible to obtain more fine leaf from the same bushes and with the same labour force. I do not mean that the bushes will give the same yield of fine as of coarse leaf. What I mean is this:—

1. By "close plucking" after, say, nine inches has been grown, and plucking round in five days, the same bushes and same labour force will yield more money for the tea made than by—

2. Leaving one or more leaves on each shoot all the year round, and plucking round in ten days. It is beyond my experience as yet whether any bushes (even on the best soil) will stand close plucking and annual thorough pruning. I intend to prune one plot for several years in succession and see whether it improves or deteriorates. If it shows an increased yield for a time, and then begins to fall off, I will try to find out whether the cost of sufficient manure to bring the yield level again will leave a margin of profit. By "thorough" pruning, I mean *cutting of all new wood thinner than a pencil.* Gardens with good soil might be able to stand alternate thorough and light pruning, *i.e.*, taking off only three or four inches from the top. But I imagine that the best results, all around, that is to say, getting the greatest quantity of the best leaf, and allowing the bushes to keep at one level of health, can be attained by pruning thoroughly and not pruning at all each alternate year, . . .

There is the old saying that the man who makes two blades of grass grow in place of one is a benefactor, but in our case we want to show how one maund of tea can bring in as much money as two maunds, so that we may relieve the strain on our markets. At present I think that I have shown that it is good poliey to improve the leaf if you are getting low prices: of course, if you are getting good prices, it would be folly to make any change.

TEA COMPANIES.

The Imperial Tea Company, Limited.—The yield of this Company to 31st ult. is 2,244,400lb. as against 1,832,080lb. to same date last year, showing an increase of 412,320lb.

The British Assam Tea Company, Limited.—The yield of this Company to 31st ult. is 439,840lb. as against 354,000lb. to same date last year, showing an increase of 85,840lb.

Korale Tea Estates, Limited.—The net amount at credit of profit and loss account, after providing for general expenses, is £1,623 19*s.* 2*d.*, to which should be added the balance brought forward from June 30, 1897, £31 8*s.* 8*d.* It is proposed to pay a dividend of 3 per cent., which will absorb £1,436 11*s.*, and to carry forward a balance of £218 16*s.* 10*d.* The year ending June 30 has been generally the worst, so far, experienced in the history of Ceylon tea; in addition to the upward tendency of the rupee, rice has again been dear and freight higher, owing to the port of Calcutta being closed from fear of spreading the plague. In addition to these causes, the island has suffered from a most unusual drought, and the Ouvah side of the country, where Wewesse is situated, has not for many years been known to have so small a rainfall. This has checked the flush of the tea and caused a smaller yield than was expected, not only there, but at Glenloch and Karagastalawa. A new factory with improved machinery has been erected on Wewesse, and this will enable the tea to be better made than hitherto, resulting, the directors hope, in a better price in the market. During the past year 126 acres have been planted with tea on the Company's estates. This year the directors did not deem it prudent to declare an interim dividend, but, owing to the improvement shown in the latter part of the year, are glad to be now able to recommend one of 3 per cent. for the past year on the preference shares, which, judging by the experience of many other Companies during the same period, may be considered a satisfactory result.

Central Tea Company of Ceylon, Limited.—The net amount at credit of profit and loss account, including the balance brought forward at June 30, 1897, and after providing for general expenses, directors' fees, income-tax, &c., is £2,729 2*s.* 2*d.* Dividends on the 6 per cent. preference shares were paid for 1897-98 (less income-tax) amounting to £1,133 0*s.* 8*d.* It is proposed to pay a dividend of 6 per cent. (less income-tax) on the ordinary shares, which will absorb £1,073, and to carry forward to next year a balance of £523 1*s.* 6*d.*

The gross average price realised for the tea was 7·75*d.* per lb. as against 7·52*d.* per lb. last season, and the rate of exchange 1*s.* 4*d.* as against 1*s.* 31-32*d.* The total crop amounted to 351,646lb., or 409lb. per acre of tea in bearing.

The Goomera (Ceylon) Tea Estates Company, Limited.—T accounts, after paying debenture interest, show a loss of £131 1 which, when deducted from the credit balance brought forward fr last year, leaves sufficient to pay the preference dividend, and this accordingly been satisfied. The result of the year's working has b most disappointing. A drought of almost unprecedented severi covering the best plucking months of the year, reduced the quant of tea manufactured in Goomera, so that it turned out 58,000lb. bel last year's crop figures. There was also a shortage on Hunug from the same cause. This large falling-off caused a great incre in the cost per pound of the actual crop harvested, so that the pri realised left a very small margin of profit. Markets for the C pany's class of tea were poor throughout the year, but had the e mated crops been obtained, a dividend would have been earned for ordinary shareholders. The estates of the Company are reported be in a thoroughly good order. The directors believe that the p results of the last year's working do not affect the producing po of the Company's property.—*H. & C. Mail.*

Lanka Plantation Company, Limited.—The coffee crop shipped London was 247 cwt. against 572 cwt. last year, and realised £1,(11s 8d net. The acreage under coffee alone is nominally 164 ac The total crop of cocoa gathered on Yattawatte amounted to 1, cwt. against 1,272 cwt. last year, and realised £4,806 14s 10d. D ing the season 34 acres were planted with cocoa, and 18 acres available land adjoining the estate have been purchased, makin total of 268 acres new land. The cost of the land and the new pla ing are charged to capital account. On the same estate 2,125 cardamoms were gathered realizing £269 16s 6d. The tea recei from the company's estates amounted to 731,593 lb. and has been s at an average of 7·45d per lb. net realizing £22,840 18s 1d. Last y the company received 701,112 lb., which was sold at an averag 7·53d. per lb. net, and realized £22,002 8s 4d. The cost of product has been increased by a further rise in the sterling value of rupee. The average rate at which drafts were negotiated on acco of the season's crops was 1s 4-3/32 d. per rupee, against 1s 3d year: this further rise representing a loss of about 1 per cent. on ordinary share capital of the company.

The net profits for the past year amounted to £6,149 13s 8d, which must be added the sum of £495 8s 2d to the balance brou forward from the year 1896-7, making together £6,645 0s 11d. H ing already paid a half-year's interim dividend on the six per c preference shares to the 31st December, 1897, amounting, less p perty tax, to £426 6s 0d, the Directors recommend payment of dividend on these shares to the 30th June last, requiring, less p perty tax, a similar amount, and having deducted £1,398 2s 0*d*, be one-tenth of the sums charged to suspense account during the years ending 30th June, 1897, they further recommend a d dend of 5 per share, being 2½ per cent. free of income tax on ordinary shares amounting to £3,750, carrying forward a balanc £644 6s 11d to the next account.

Central Tea Company of Ceylon, Limited.—The Directors have pleasure to submit the general balance sheet and profit and l account for the year ending 30th June, 1898, duly audited.

The net amount at credit of profit and loss account, including balance brought forward at 30th June, 1897, and after providing general expenses, Directors' fees, income tax, &c., is £2,729- Dividends on the 6 per cent. preference shares were paid for 189 (less income tax) amounting to £1,133-0-8. It is proposed to pa dividend of 6 per cent. (less income tax) on the ordinary sha which will absorb £1,073, and to carry forward to next yea balance of £523-1-6. The gross average price realized for the was 7·75d per lb., as against 17·52d per lb. last season, and rate of exchange 1s 4d as against 1s 3 1-32d. The total crop amoun to 351,646 lb., or 409 lb. per acre of tea in bearing. At an extrao nary general meeting, held in May, 1897, it was resolved that share captial of £45,000, divided into 1,500 6 per cent. preference 3,000 ordinary shares, be altered to 2,250 6 per cent. preference 2,250 ordinary shares. The necessary agreement drawn by the C pany's solicitors was signed by all shareholders, and duly registe with the Registrar of Joint Stock Companies on 14th July, 1 157 ordinary shares were cancelled, and 157 preference shares iss in lieu thereof. The 593 unissued preference shares were offe to the public in December, 1897, at a premium of £2 per sh These shares were duly taken up, and the premium arising therefr viz., £1,186, it is now proposed to write off from the cap accounts of the estates.

COFFEE PLANTING IN BRAZIL.

Dr. F. W. Dafert, Director of the Institute of Agriculture in the State of Sao Paulo, Campinas, Brazil, is the author of a pamlphet on coffee planting in Brazil, in which consideration is given to the present position of the industry. It is published by J. H. de Bussy, Amsterdam, Holland, and translated for the *American Grocer* and a digest made by J. F. Geisler, Ph. C., as follows:—

The total amount of land under cultivation for coffee in 1895-96 was estimated at 2,245,557 hectares, and the world's product at 836,000 tons, of which Brazil produced 460,000 tons upon a cultivated area of 1,000,000 hectares. Although Brazil embraces about 8·3 million square kilometres (an area equivalent to that of Europe), and only about one-tenth of this is excluded from the possibility of coffee culture, yet economical reasons exclude nine-tenths of the theoretically available area. Of the latter, much is of poor quality, but can be made very productive through artificial fertilisation which would bring into active factors the *campos* (grass lands) and *terra exhausta* (exhausted soils).

The lands originally selected for coffee plantations were almost exclusively such whose *flora* consisted of primitive forests or wood lands. Rarely were the *campos* ventured upon. While nature of soil, amount of moisture, and climate are the prime factors in the selection for plantations, the lands should not be exposed to frosts or the cold south winds. The soil should not be wet, and must be porous and deep, to prevent injury to the tap root.

Geologically, the best coffee lands are those of recent volcanic origin, as evidenced by the diorite, melaphyre, and porphyr rocks. To this group belongs the *terra roxa*, a dark red soil. The *terra vermelha* a lighter red soil, inferior to the former, originated from the paleozoic and triassic ages. One of the best Sao Paulo soils, known as *massapepreta*, is a rich humus soil. The best soils are rich in phosphoric acid and potash, containing usually 18 to 35 per cent. of the former and 10 to 26 per cent. of the latter. The fertility of the soil is usually indicated by the number, strength, and character of the trees.

The varieties of climate in Brazil are so great within the cultivated zone that Rio coffee is usually marketed a month sooner than Santos coffee, while the crops of Brazanca and Atibaia do not mature before October.

Of the varieties of coffee, *cafe nacional* is the most widely cultivated. It is less productive than the *cafe Bourbon*. The latter exhausts the soil very quickly, and is, therefore, not very popular with planters. *Maragogipe* is a large berry of limited production and high market value. *Botocatu*, a local yellow variety, known in India as "Golden Drop" coffee, is not much culitvated. The variety stands between *cafe nacional* and *cafe Bourbon* in productiveness. A very scarce variety of scientific interest is the *cafe hybrico*, with four to six berries instead of the two berries common to the other varieties.

At present the varieties cultivated are divided approximately at 75 per cent. Arabian, 20 per cent. Bourbon, and the rest between *cafe Botocatu* and *Maragogipe*.

The abolition of slavery in 1888 raised the cost of production of coffee and, in a measure, also the method of cultivation. By the old method, as soon as a land showed a tendency toward short crops, the planter with his slaves moved to the interior, where he had acquired new lands. The primitive forest was cut down and the land planted with young trees from the old plantation, or seedling was resorted to. It required three and-a-half to four years before the new plantation became productive. By the new method a well-manured seed-bed is prepared and the young plants carefully nursed and transplanted two or three times, and gradually accustomed to the sun. The small trees are then transplanted in baskets in rows carefully spaced so as to permit the use of machines for hoeing. The careful nursing of the plants yields in one and-a-half years what the old method scarcely produced in four years. The land is kept free from weed, and for this purpose is machine-hoed at least five times.

To restore the amount of mineral matter annually removed by the crops the added fertiliser should contain about eight grammes phosphoric acid, thirty-five grammes potash, and sixteen grammes nitrogen per tree. Stable manure must also be applied to the soil to get the best results.

For practical purposes the farm or plantation should be divided into two sections—one for coffee cultivation proper and the other for food and fodder. The ratio for practical purposes should be, at least, for 10,000 trees fifteen hectares fodder land and five hectares animal land. The manure from the latter plays an important part in the successful working of the plantation.

In gathering the crops the ground under the tree is carefully cleaned and the berries allowed to fall on the same. Double picking, to separate the ripe and unripe berries, is frequently resorted to, but is not a universal practice. The picked berries were formerly dried in the sun on mats, the operation taking several weeks. The dried berries were then shelled, cleaned, sorted, and marketed. The average yield per tree was 300 to 900 grammes, the hectare containing 900 to 1,100 trees. The maximum yield ranged between the tenth to fourteenth years, and varied from 270 to 900 kilos per hectare. In the modern plantation the trees are planted in line four to six metres apart, and the soil fertilised with a mixture of stable manure and chemical fertilisers.

The preparation for the market of the picked berries is done by both the wet and dry process. Usually the picked berries are put through a decorticator, in which the ripe berries are crushed, while the unripe hard berries pass through unchanged. The latter are dried separately. Since the ripe berries float and the unripe berries are heavier, this method is frequently resorted to for their separation. The berries are spread out in layers for drying, the decorticated berry requiring about five days (if dried in shell, eight days), while the green berry requires twenty to thirty days, according to the weather.

The drying process is now much improved by sorting the berries according to their size. The berries are first dried in the sun for a few days, by which operation they lose about 50 per cent. of the moisture. They are then transferred to drying-chambers, and the drying rapidly terminated; so that the whole operation is finished within five days, whereas the old method required twenty to thirty days. Moreover, the degree of moisture of the berry is more accurately judged during the artificial drying. Thus the blue berries contain more moisture than the green, and the latter more than the yellow.

The modern method of applying fertilisers tends to an increased production of coffee. Thus the products from fifty trees raised in the trial gardens averaged per tree as follows:

	Planted					
	1892.	1893.	1894.	1895.	1896.	1897.
	Gram.	Gram.	Gram.	Gram.	Gram.	Gram.
Unfertilised	25	35	200	90	605	560
Fertilised	40	120	780	485	700	900

For well-fertilised trees twenty years old the product should average 2·5 kilos per tree. Relative to the future of coffee culture in Brazil, there is nothing in the natural conditions to prevent either the continuation or expansion of raising coffee in Brazil. The principal difficulties are in the management.

The present position of the planter is very precarious, and most of them may be compelled to sell or surrender their properties to the mortgagees. In that event the new possessors could work the plantations to advantage at the present prices. A great many Italians have been imported and have displaced slave labour on the plantations. There is no likelihood of these Italians emigrating, as no other land offers any better advantages for obtaining subsistence and which condition invites further immigration.

PRODUCE AND PLANTING.

All is Lost. As the tea industry is at present under a cloud, there is no lack of good-natured friends to sigh over the position and say: "We told you so." But for a really depressing, never hope-again way of regarding things, the following from the *Pall Mall Gazette* deserves special mention. The writer of this dirge says: "The public should be in the mood at present to consider the dross in their treasuries, and we commend Indian tea shares to their unfriendly attention, should they be burdened with this particular class of security. There can be but little doubt that the trade is entering upon a crisis, which will account for the anxiety of certain retailers to convert their undertakings into limited liability companies. The weak spot is the planter. The enormous increase in output and the increase in the area under tea are having results usual when production is outstripping consumption. Some of the

pessimists profess to see in improved Chinese methods an influence that will act adversely to Indian growers. It is sufficient for the present in this respect to note that the Indian planter always has the initial advantages of cheaper labour and the actual hold on the markets. The real difficulty is over-production. Private advices from planters of experience in Assam assures us that the falling off in prices has led to resolutions to considerably increase the output, and it does not require an economist to show that where quantity and not quality becomes the controlling influence the outlook is gloomy enough. That Ceylon will feel the pinch more than Assam is probable. In fact, at the present time we should scarcely desire to see our dearest enemy a holder of the average Ceylon tea share. But the crisis is rapidly approaching in Assam. There being no controlling influence in the matter of the output it is a case of every man for himself. The weak companies and the small planter must inevitably go to the wall during the next few years, and meanwhile there are low prices and seriously curtailed profits to be faced by the sounder concerns. It is thus time that the investor in Indian tea shares should seriously consider his position, and although the storm may not loom up immediately, it cannot be deferred for any very long period." There is not too much "crisis" about this, but just enough. A few figures may be useful, therefore, in order to show that the position is not quite hopeless. The imports of Indian tea for the period June to October this year were 62 million lb. against 61½ in 1897, while the deliveries were this year 55¼ million lb. against 48½ in 1897, and the stock is less now than it was this time last year. These figures are much more to the point than the *Pall Mall Gazette* jeremiad.

THE SAME OPINION STILL.

In reply to the *Pall Mall Gazette*, Messrs. Gow, Wilson and Stanton write, pointing out "that for many years past the production of Indian and Ceylon teas had been outstripping consumption, but since January last this has not been the case, as in Markets outside the United Kingdom, particularly in America, Russia, the Continent of Europe, and also largely in Australia and New Zealand, a very important demand has sprung up for British-grown teas. Owing to the recent increase in this outside demand, the danger of over-production, which has been facing the British-grown tea industry, appears to have already passed. In support of this we now place before you a few rather important figures. For the first nine months of this year the use of Ceylon tea in markets outside the United Kingdom has increased 7 million pounds, the figures being 28 million pounds, as against 21 million pounds for the same nine months of last year. During that period production of Ceylon tea showed an increase of about 2 million pounds, but the net result is that 5 million pounds of Ceylon tea were diverted from the home market. The use of Indian tea in foreign markets is also showing a satisfactory development. We can, however, look to the home market to take our extra supplies from that country. We find that for the first four months of the season, namely, June to September, there has been an increase of five million pounds in the deliveries of Indian tea, a remarkable expansion, while it is estimated that the total production from India will only exceed that of the previous year by some two or three million pounds." The editor of the *Pall Mall Gazette* prints the letter merely adding, "but we see no reason whatever, from the information at our disposal, to alter our view as to the prospects for tea shares during the next few years." This is a long-range prophecy, even allowing that the editor of the *Pall Mall Gazette* is in possession of information quite out of the reach of ordinary mortals.

LAST WEEK'S TEA SALES.

Public sales of Indian tea continue on a liberal scale, but, owing to the steadily increasing demand, no change of importance in values has been established, says the *Produce Markets Review*, referring to last week's sales. The only weakness is in the poor liquoring medium kinds, and even in these the decline in no case exceeded ¼*d.* Most descriptions have fallen to a point that will doubtless further stimulate consumption, and as Ceylon teas are still very firm, it is probable that all desirable kinds of Indian teas have reached a safe level. This view would seem to have been adopted by the trade, as buying during the past few weeks has been more general and on a decidedly larger scale. Values appear likely to be steady at present, and although the supply will be larger for some time to come, the improved demand will in all probability continue, more particularly for the good medium sorts, owing to the excellent value offering. In consequence of the reduced estimate of the crop, and of larger quantities being sent direct from Calcutta to other markets—the increase amounting to upwards of 3,000,000lb.—it is by no means certain that the available supply for this market will reach the rev estimate. The tone of the market for Ceylon tea continues good a brisk demand, the tendency being firmer for most kinds unde per lb. Common to good medium descriptions were in strong req and prices in many instances showed a distinct improvement, altho some lots, with really pungent flavour, realised fully ½*d.* per lb. a former quotations. For the finest grades, however, competition not so keen, and prices occasionally ruled in favour of buyers. exports from Colombo for the nine months from January 1s September 30th show a decrease of 3,000,000lb. against the s period last year, the actual figures being 74,500,000lb. as comp with 77,500,000lb. in 1897.

COCOA AND ITS MANUFACTURE.

Although the consumption of tea is far al of cocoa, the proportion being 10lb. of tea to of cocoa, the public taste for the latter is incr ing, and the *Grocer*, in commenting on this, calls attention to the that foreign cocoa manufacturers are seriously threatening position of English manufacturers in their own markets. It g the following table, which shows the quantities of the arti retained for home consumption in the United Kingdom in the y specified, and the increase or decrease per cent. in each year comp with the year preceding:—

Articles.	1888.	1895.	1896.	1897.
	lb.	lb.	lb.	lb.
Cocoa	19,909,569	27,155,360	28,046,711	36,201,1
	p.c.	p.c.	p.c.	p.c.
Increase ...	13·3	8·8	3·3	29·1
	cwt.	cwt.	cwt.	cwt.
Chicory and coffee...	373,173	331,286	328,990	325,699
	p.c.	p.c.	p.c.	p.c.
Increase ...	1·3	1·7	...	...
Decrease ...	...	...	0·6	1·0
	lb.	lb.	lb.	lb.
Tea	185,416,238	221,731,490	227,722,561	231,328,1
	p.c.	p.c.	p.c.	p.c.
Increase ...	1·0	3·4	2·7	1·5

Thus, says our contemporary, it appears that, although the amo of tea consumed is enormously disproportionate to that of cocoa,

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ESTATE REQUISITES AND MANURES.

N.B.—We are prepared to indent home for any and all kinds of estate requirements not kept in stock or enumerated in this list.

	Rs.	A.	P.
ESTATE TOOLS—			
Round Eye Felling Axes (steel), 4 lbs. weight per doz. ...	20	4	0
Do. do. do. 2½ „ „ „ ...	15	0	0
Pick Axes, 6½ lbs. (well steeled) ... ... „ ...	16	8	0
Bill Hooks, (Barcutties) 12″ blade, bright steel „ ...	18	0	0
Do. Kentish, with back, steel, 2¼ lbs. wt. „ ...	16	0	0
Bushel Measures (Galvanized), Imperial Stnd. ...each ...	15	0	0
Watering Cans, (Galvanized) "Nonsuch," 2½ gals. each...	4	8	0
Do. do. do. 2 „ ...	4	0	0
Steel Digging Forks. *Steel strapped all along handle.*			
4 & 3 pronged per doz. Rs.39-0-0 &	33	0	0
Grass Knives, socket handle, steel ... per doz. ...	12	12	0
Hammers, 6, 7, & 8 lbs. ... ... per lb. ...	0	6	0
Handles, Digging Fork ... ... each ...	0	14	0
Lining Ropes, abt. 600 feet ... „ ...	17	0	0
Tarred Russian Hemp „ 300 „ ... „ ...	8	8	0
Mamooties, Steel 10″x 8″ & 9″x 7″ abt. 4 lbs. wt. per doz. ...	12	12	0
Do. Iron 10½ x 8½ & 9½ x 8 abt. 3¾ lbs. wt. „ ...	7	8	0
Quintanies, Steel 15″ × 6,″ 5½ lbs. weight ... „ ...	18	0	0
Do. 9½″ x 5,″ 3¼ „ „ ... „ ...	14	4	0
Manure Pans, (Galvd.) 8″ deep x 18″ top x 10″ bottom „ ...	23	4	0
Pitting Bars (Alavangoes), well-steeled points,			
3″ spade end, 45″ long, 9 lbs. weight... ... „ ...	16	8	0
3″ do. 36″ do. 6½ do. ... ... „ ...	12	12	0
Pruning Knives, English make, best steel, 4″ blade „ ...	9	0	0
Do. Saws, do. do. 14″ „ ...	18	0	0
Seamless Bags (for coffee transport to coast) 42″ x 20″ „ ...	9	12	0
Shovels, round nose, T handle ... ... „ ...	12	12	0
Tea Transplanting Spades, steel, sharp edges... each ...	2	8	0
Tea Transplanters.—Made to Planters' Samples.			
TEA PACKING REQUISITES, Etc.—*(For Nails see opposite.)*			
Chests Full 24 x 19 x 19 (outside) ½ in. planks each...	1	1	0
Half 16 x 16 x 16 („) do „ ...	0	13	0
Quarter 14 x 12 x 10 („) ⅜ do „ ...	0	9	3
Deld. Metapol., Palghat, Calicut. Any dimensions, proportionate prices.			
Lead—BEST INCORRODIBLE. 4½ oz. Per case of 2 cwts:—			
127 sheets 37″ x 22″ ... ... „ ...	32	0	0
240 „ 25″ x 19″ or 93 sheets 65″ x 19″ „ ...	32	0	0
586 „ 14″ x 14″ ... ... „ ...	30	0	0
50 „ 84″ x 22″ for sides }			
100 „ 21″ x 16″ „ tops and bottoms } „ ...	30	0	0
Hoops, Steel ½″ (abt. 3,000 feet to the cwt.) ... per cwt. ...	15	0	0
Solder (Sticks) per case of 1 cwt. Rs. 50, or per lb. ...	0	8	0
Soldering Fluid ... ... per bottle ...	2	0	0
Do. Irons ... ... each ...	2	0	0
Stencil Ink black, in round tins... ... ... „ ...	1	0	0
Do. Brushes ... ... „ ...	0	12	0
Tea tasting Pots and Cups ... ... per doz. ...	10	8	0
Tea Sieves, brass No. 6, 8, 9, 10, 12 mesh each ...	6	0	0
Do. do. bottoms do. „ ...	3	8	0

	Rs.	A.	P.
WINDOW GLASS—per case of 100 sq. ft. (all sound) ...	15	0	0
12×10 (120 panes), 16×14 (64), 18×14 (57),			
22×18 (36), 24×20 (30), 28×24 (21), 36×24 (17) and 36×30 (13).			
COFFEE PULPERS—*To order only. One month required for delivery.*			
Agents for:—MESSRS. WALKER SONS & Co., LD.			
COIR MATTING—Per rolls of 60 feet long x 3 feet wide:—			
* Machine-made Yarn:—Superior Rs.15; Fine	12	8	0
* Ordinary Twill Bungalow	7	0	0
No. 1 Estate, Double (for coffee drying, etc.)	2	8	0
„ 2 „ „ (do.)	2	4	0
Shade (for nurseries, ferneries, &c.)	2	0	0
* *Coloured stripes to order. Samples on application.*			
ASPHALTE—			
In barrels of 6¼ to 8½ cwts. gross (tare 56lbs.) per cwt. net...	4	0	0
PORTLAND CEMENT—John Bazely White and Bros.			
"Whites" Best ℔ barrel of abt. 375 lbs. net ...	11	12	0
Sole Agents for S. Canara, Coorg, Malabar, Coimbatore, Travancore.			
COAL TAR—			
Best ℔ barrel of abt. 4 cwts. gross (net about 3¼ cwts.)...	20	0	0
GALVANIZED IRON—			
Continuous Iron. For roofing, etc.			
In rolls of 100 ft. x 2 ft. 28 G. (per ft., 7 as.) per roll ...	35	0	0
Nails 1 in. flat headed for fixing the above per 1,000 Nails...	1	5	0
Corrugated Iron (English), 24 G. 2 ft. wide ... per cwt....	10	0	0
Lengths in feet 5 6 7 8 9 10			
Sheets to the cwt. (abt.) 8·25 6·95 5·85 5·10 4·55 4·10			
Selected sheets Rs. 1/7 1/10 1/15 2/4 2/7 2/12 each.			
Iron Ridging, 6 ft. x 6 inch lap. ... ... per length...	1	8	0
Bolts and Nuts, ¼″ x ¾″ ... ... per gross ...	1	14	0
Rivets ... ... „ ...	0	12	0
Washers, Iron ... ... „ ...	0	10	0
Do. Lead ... ... „ ...	1	2	0
Screws, 2½ in. ... ... „ ...	2	4	0
Lead headed nails, 2½ in. ... ... „ ...	2	12	0
NAILS—Wire, French.			
℔ 1 cwt. keg 1″ 1½″ 2″ 2½″ 3″ 4″			
Rs. 13/12 11/8 11/ 10/8 10/ 9/8			
℔ pound annas 2¾ 2½ 2¼ 2¼ 2 1¾			
Nails ℔ lb. (*abt.*) 600 250 150 100 50 30			
Triangular Barbed Wire Nails.			
℔ 1 cwt. keg 1″ 1½″ 2″ 3″ 4″			
Rs. 11/4 9/8 8/12 8/0 7/8			
LUBRICATING OIL FOR OIL ENGINES:—			
A blend of the finest and best oils.			
In drums of 5 Imperial gallons ... ... per drum ...	15	0	0
PERMANGANATE OF POTASH ... ... per lb. ...	1	6	0
Used by the Medical Authorities for purifying wells, drinking water, etc.			

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4

yearly amount of the latter has, at any rate, nearly doubled in the ten years. If the present rate of increased consumption continues, it is estimated that our population will before long consume more cocoa than coffee. But when we examine the details of the import returns, we find that it is the cocoa of foreign manufacture which is really making headway. The import duty on raw cocoa is 1*d.* per lb. and on manufactured cocoa 2*d.*—a protection of 1*d.* a lb. to the home manufacturer. But the increased consumption of foreign manufactured cocoa goes on in spite of this protection. When the imports of 1898 and 1897 have more than doubled those of 1896 the position becomes alarming. It is clear that the article as made abroad finds increasing favour, and there is every sign that the public taste for what may be called the new style of cocoa will continue to grow. To explain the sudden rise in the consumption of imported cocoa, we must bear in mind that the Continental article is made on a different principle from that most generally adopted in this country. In the former, the superabundant fat is reduced by pressure; in the latter, it is often diluted by the addition of another substance. We have British cocoa manufacturers who certainly have nothing to learn from Germany, Holland, or France. But, taking British cocoa all round, there is ground, at any rate, for asking whether the trade is not too conservative. Some of our manufacturers make a preparation similar to that of the Continent; but the sale is not pushed to the same extent as is that of the old-fashioned mixtures. There is no reason why our manufacturers should not make rapid strides if they care to bestir themselves. There are fashions in cocoa as in other things, and our manufacturers should be careful to study them. Are the public growing tired of the thick emulsion with which they have for so many years been supplied and giving preference to the tea-like preparation of the Continental manufacturers? Or can it be that what we see taking place is merely the result of the art of modern advertising? Whatever may be the cause, the result is too important to be lightly overlooked, and the lesson taught by the sudden change in the public taste from China to Indian teas should not be forgotten. The figures we have quoted above demand the serious attention of our British cocoa manufacturers.

DISTRICT ASSOCIATIONS.

SHEVAROYS.

Proceedings of the Monthly Committee Meeting of the Shevaroy Planters' Association, held in the Victoria Rooms, Yercaud, on Monday, the 5th September, 1898, at 1 P.M.

PRESENT: Messrs. C. Dickins, C. Rahm, Rev. J. M. Kempf, C. G. Lechler, *Chairman*, J. C. Large, T. H. Short, R. Gompertz, *Honorary Secretary*.

1. Notice calling the meeting was taken as read.

2. Copy of Plague Notice and of Collector's No. 43 of 30th ultimo (Plague) to the Deputy Tahsildar of Yercaud was read, and it was resolved with reference thereto that, in the opinion of this Meeting, it is the duty of all Planters to give the Government officials every assistance in their power in the present emergency.

3. *Resolved* that the *Central African Times* (newspaper) be stopped.

4. *Resolved* that Mr. Thurston Short be requested to go through the Book of Proceedings, noting any alterations or additions that have been made in the rules since the Association was started and submit them to the Committee with a view of framing a new code of rules embodying as far as may be the above alterations.

ROBERT GOMPERTZ,
Honorary Secretary, S.P.A.

Proceedings of a Committee Meeting of the Shevaroy Planters' Association, held in the Victoria Rooms on Monday, the 7th November, 1898, at 1 P.M.

PRESENT: Messrs. Large, C. G. Lechler, *Chairman*, Rev. M. Andersen, C. Rahm, R. Gompertz, *Honorary Secretary*.

Read letter from Secretary, U.P.A.S.I., requesting Association to pay for its copy of the *Planting Opinion*, and that it should let the Manager of it print its proceedings in future. *Agreed to.*

Read letter from Mr. Frank Mangles *re* classification of coffee.

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[w. 19-11-98—13-5-99.]

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N.B.—Special List for Planters' Medicines, &c

[w. 19-11-98—18-2-99.]

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[w. 1-10-98—31-3-99.] **E. D. SMITH & CO., MADRAS.**

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[w. 15-10-98—14-1-99.]

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Machinery, **Ironwork (repairs, &c.)**

Corrugated Iron Sheets, &c.,

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Prices on application.

Resolved that the Honorary Secretary be requested to write to the Secretary, U.P.A.S.I., suggesting that that body should try and induce curers in this country to adopt a mesh of uniform size for Coffee—A. B. C. etc.

Read letter from President, District Board, Salem, stating that the repairs of the Chembanauth road are estimated to cost Rs.435, and enquiring how much the planters would be willing to contribute.

Resolved that the Honorary Secretary be requested to forward copy of the letter to Mr. Thurston Short for favour of early reply.

Read letter from Mr. Lechler *re* the case in which a tappal cooly was imprisoned for six months for stealing a letter containing a supply bill which he attempted to cash, and suggesting that in order to check such attempts in future, planters should purchase postal bags and stamp all supply bills with the name of the estate.

Resolved that the Honorary Secretary be requested to issue a circular suggesting this.

Read and *recorded* the following letters :—

Circular from the Secretary, U.P.A.S.I., informing that His Excellency in Council believes that the Government of India has under contemplation the appointment of an Entomologist as referee for the whole of India.

Circular from the Secretary, U.P.A.S.I., regarding classification of and reduction of British tea duty.

Circular from the Secretary, U.P.A.S.I., forwarding copy letter from Mr. Acworth, acknowledging vote of thanks pass

Circular from the Secretary, U.P.A.S.I., regarding the red tion of British tea duty.

Circular from the Secretary, U.P.A.S.I., forwarding copy a letter from Mr. Frank Mangles regarding classification coffee and reduction of British tea duty.

Circular from the Secretary, U.P.A.S.I., forwarding copy letter from Mr. Frank Mangles on the classification of coffee.

Circular from the Secretary, U.P.A.S.I., forwarding copy letter from Mr. Green, Honorary Government Entomolog Ceylon, regarding the importation of lady-birds.

Letter from the Proprietor of *Planting Opinion* inform that the paper has passed into his possession.

Letter from T. P. J. Nayaratum Pillai informing that he is in a position at present to quote the price of stores.

Letter from the Superintendent of Police requesting list coffee estates on the Shevaroy Hills.

Letter from the Collector, Salem, requesting names addresses of persons willing to serve as Plague Inspectors.

Letter from the Chairman of the Yercaud Union forward copy of correspondence which has passed between the Colle and himself regarding the erection of segregation sheds.

Letter from Higginbotham & Co. informing that they order the "Journal of the Royal Agricultural Society."

HIGH CLASS TAILORING.

We have now secured the services of Mr. W. J. Marden, whose experience as a Cut and Practical Tailor extends to a period of over 20 years in some of the leading houses England and India, and whom we can, therefore, confidently recommend as a veteran exp cutter. Having placed our Tailoring Department under his control, we guarantee perf Fit and Style. This assurance, coupled with our proverbially Cheap Rates, will, we tru induce you to give us a trial order, which we respectfully solicit.

FREE CHRISTMAS GIFTS.

We are giving away 4 Bicycles and 200 useful Prizes. Numbered Ticket is given the purchase of every 2 Rs. worth of goods. Drawers of the lucky numbers will receive t prizes free.

ROYAL EMPORIUM,
BANGALORE

[w. 3-9-98—t.f.o.]

Agents for LEA & PERRINS' **WORCESTERSHIRE SAUCE.**

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By Special Warrant Purveyors to **The Queen AND Empress of India.**

CELEBRATED OILMAN'S STORES.

[w. 1-10-98—t.f.o.]

Letter from Mr. Lonsdale thanking the S.P.A. for their courtesy in having made him an Honorary Member.

Letter from Mr. Arbuthnot informing that it will give him much pleasure in becoming a member of the S.P.A.

Letter from the Collector, Salem, informing that the land required by Mr. Dickins was not surveyed on account of the permanent man being away until the 4th instant, when the work was put in hand.

Letter from the Collector, Salem, forwarding extracts from G.O., No. 1245, dated 15th October, 1898, stating that Government will bear half the cost of Caste Plague Hospital.

Letter from the Collector forwarding estimate for Rs.435 for repairing the Chembanauth road, and enquiring how much of this would the planters contribute.

Letter from the Collector, Salem, forwarding orders regarding the destruction and burning of rats, mice, etc.

Circular.—The London Customs' system of weighing Ceylon teas.

The following papers were laid on the table :—

Africa Times, four copies, dated August 6th, 13th, 20th, 27th.

Planting Opinion, four copies, dated October 8th, 15th, 22nd, and 29th.

Proceedings of the Nelliampathy Planters' Association, dated 28th September, 1898.

Proceedings of the Wynaad Planters' Association, dated 5th October, 1898.

Agricultural Ledgers.—No. 9, Egyptian Cotton; No. 10, Mulberry; No. 11, Pine Apple.

C. G. LECHLER,
Chairman.
ROBERT GOMPERTZ,
Honorary Secretary.

WINDING UP THE WATCH.

IT is my custom to wind my watch every night at ten. When I go to bed I lay the watch on a little table at the head of the bed. Should I chance to wake in the night I always hear the clear, distinct ticking. But one night recently I awoke and heard no sound from my faithful friend. "What!" said I, "is it possible I forgot to wind it?" To light the candle and put the watch to my ear took but a minute. Going still? Yes, going still; but very feebly and faintly. I wound it at once, of course. Then it spoke out plaintly, arousing echoes in the stillness, and to its monotonous music I dropped off to sleep.

That other watch—the watch in your breast. Ah! it doesn't do to let that run down, for, unlike the pocket watches, when *it* stops it stops, as the children say, "for keeps," for good and all.

Therefore Mrs. Susan Gladdish's statement that her "heart used to stop beating" cannot be accepted literally, She doesn't mean it so. She means that at times it beat so feebly and faintly she could hardly feel it. "It alarmed her very much," she says. No doubt. But what ailed it?

"In July, 1892," she says, "I began to feel ill. At first I felt tired and weak, without life or energy. I had a bad taste in the mouth, spitting up thick phlegm and a sour, frothy fluid. My appetite was bad, and after eating I had a sense of pain and weight at the chest. I had also frequent attacks of dizziness, and had I not taken hold of something I should have fallen to the ground.

"As time passed I grew weaker and weaker until I could barely walk across the floor. For six months I was confined to the house. The doctor said my heart was exceptionally weak. He gave me medicines and told me what outward applications to make when the attacks came on. They did no good though.

"I was in this condition sixteen months, when, in November of last year (1893), my brother told me about the benefit he had received from Mother Seigel's Curative Syrup during an illness he had been through. This made me hope the Syrup might do me good, as it had done him. I got a bottle from Mr. Wiseman, grocer, Perry street, and after taking it for a week I felt relieved. By the time I had taken three bottles I was cured, and have had no return of my trouble. Had I known of this medicine sooner I should have been spared a deal of suffering. (Signed) Mrs. Susan Gladdish, 7, Lansdown Place, Perry Street, Gravesend, January 10th, 1894."

We could quote the words of several other persons, mostly women, who have passed through an experience virtually identical with that of Mrs. Gladdish, but it is not necessary, as the comment on her case will apply to theirs.

One point at a time, then. The heart is no weakling, no tender flower that must be constantly nursed and tended. It is a tough, powerful muscle, and does more work, far and away, than any other organ in the body. All the others stop and rest betimes. The heart never does. It hammers away, year in and year out, day and night, workdays, holidays, and Sundays. It is kept going by the nerves, the nerves are kept going by the blood, and the blood is merely digested food from the stomach. There's the connection.

Mrs. Gladdish was afflicted with indigestion and dyspepsia. That poisoned and thinned her blood, starved her nerves, and made the nerves unable to give the usual strong impulse to the heart. Thus the heart beat feebly; the brain, insufficiently supplied with blood, caused the dizziness, and the *general* lack of nourishment to the whole body caused the weakness, pain, and loss of flesh. The Syrup went to the bottom of the difficulty, expelled the poison from the system, and restored the digestive powers. The food then taken gave new vigour to the nerves, and the nerves set the heart at work, vigorously, and on full time.

In other words, Seigel's Curative Syrup wound up the watch. Please remember this simple yet wonderful process.

MARKET REPORT.

COFFEE.

Messrs. Wm. Jas. & Hy. Thompson's Report of the Colonial Markets for the Week ending November 2nd, 1898, says :—

We have no change to report in this market, which continues flat for all medium qualities, and steady for fine. Brazil markets are quiet.

Futures have been firmer, and close 6d to 9d per cwt. dearer, viz. :—Good average Santos in Havre, December delivery, fcs. 37.25, in Hamburg pf. 31½, and No. 7 low ordinary Rio in New York $5.30.

Daily receipts averaged 9,500 bags in Rio, and 18,600 bags in Santos.

To-day's London official quotations are :—

	Nov.	Dec.	Mar., '99.	May.	July.	Sept.
SANTOS ...	30/3	30/6	31/3	31/6	31/9	32/3

We quote :—

Ceylon, mid. to good mid.	101/	@108/	
Do. small to low mid.	79/	„ 99/	
East India, mid. to good mid...	70/	„ 92/	
Do. small to low mid.	58/	„ 72/	
Guatemala, mid. to fine...	66/	„ 98/	
Do. good ord. to low mid...	50/	„ 64/	
Salvador, good ord. foxy greenish...	38/	„ 42/	
Costa Rica, mid. to fine...	69/	@104/	
Do. ord. to low middling.	37/	„ 65/	
Jamaica, good to fine ord.	32/	„ 48/	
Do. greenish to fine colory...	65/	„ 120/	
African ...	26/	„ 29/	
Columbian, ordinary ...	36/	„ 43/	
Do. good ord. to low mid...	42/	„ 63/	
Do. mid. to fine...	64/	„ 98/	

Receipts in Brazil to 2nd November compare as follows with previous years :—

	1898-99.	1897-98.	1896-97.
	Bags.	Bags.	Bags.
RIO	1,374,000	1,920,000	1,513,000
SANTOS	2,893,000	3,397,000	2,523,000
	4,267,000	5,317,000	4,036,000

Auctions—

58 bags East India, partly sold	47/6	@	62/
160 bags Wynaad Liberian, chiefly sold	20/6	„	33/
1,224 bags Costa Rica, part London cleaned, partly sold	28/6	„	37/
2,443 bags Guatemala „ „ small part sold	28/	„	39/
635 bags Salvador, part sold	27/6	„	36/6
144 bags Nicaragua	37/	„	—
1,235 bags Vera Paz & Coban, part London cleaned, partly sold	28/6	„	105/
5,307 bags Columbian, part London cleaned, good part sold	29/	„	106/6
100 bags Lahat bought in.			
97 bags Nyassaland, London cleaned, partly sold ...	55/	„	80/
146 bags Washed Santos Maragogipe, London cleaned, sold	79/6	„	92/6
2,533 bags Washed Santos bought in.			

125 barrels 1 bag Jamaica, part London cleaned, partly sold ... ... 33/ „ 112/
40 packages Mocha bought in.
66 bags Abyssinian bought in.
Landed last week ... 436 *tons. Deliveries* ... 815 *tons. Stock*...18,315 *tons*
Do. last year ... 615 „ „ ... 734 „ „ ...10,382 „

Messrs. Gow, Wilson and Stanton's Indian, Ceylon, and Java Tea Report, dated November 4th, 1898, says :—

QUANTITY BROUGHT TO AUCTION IN LONDON

FROM 1ST JUNE TO DATE.

	Indian.	Ceylon.	Java.
1898-1899.	634,802 pkgs.	531,864 pkgs.	19,912 pkgs.
1897-1898.	624,391 „	558,991 „	18,487 „

50,127 pkgs. Indian
24,692 „ Ceylon
129 „ Java.
} Total 74,948 packages were offered in public auction this week.

Deliveries of Indian Tea in London during the past five months show an increase of nearly 7,000,000 lb. over the corresponding period of last year, imports being only about 700,000 lb. in excess. The stock, w on 31st May was 6,000,000 lb. above that of May, 1897, has now f below that on the 31st Oct., 1897. The extremely low prices of u Indian Teas appear to have caused a somewhat remarkable increa consumption.

Indian. The market easily absorbed the supplies at very firm rates tendency being towards a hardening in prices. The official wire give ports to U. K. for 2nd half of Oct. as 10,820,000 lb., against 10,300,0 last year ; from 1st April 91,037,000 lb. against 88,140,000 lb.

Ceylon. Competition was good for all Teas up to about 10d. per lb better grades, however, showed decided weakness, a reduction of 1d. per lb. frequently being chronicled. The official telegram gives ex to U.K. for Oct. as 6,500,000 lb., against 6,000,000 lb. last year ; 1st to end Oct. 81,000,000 lb., against. 83,500,000 lb ; estimate for Nov. 7¼ millions, against 6,750,000 exported 1897. Average for week 8 against 9·04d. same period last year.

Ceylon Tea sold on Garden Account 1st January to date 1898, 96 pkgs., av. 7·71*d.* 1897, 940,525 pkgs., av. 7·74*d.*

Java. Only 129 packages were brought forward. 1,544 package printed for next week.

MOVEMENTS of TEA in LONDON (in lb.) during OCTOBER from TEA BROKERS' ASSOCIATION FIGUR

	Imports.			Deliveries.		
	1898.	1897.	1896.	1898.	1897.	1896.
INDIAN	22,072,278	19,880,092	23,707,662	13,184,637	11,532,526	11,985,619
CEYLON	6,950,790	5,520,072	5,370,392	8,431,730	8,517,792	8,118,134
JAVA	189,910	122,220	164,010	298,620	287,700	369,670
CHINA, ETC.	3,105,462	3,663,146	3,854,868	2,741,443	2,868,770	4,153,284
TOTAL lb. ...	32,318,440	29,185,530	33,096,932	24,656,430	23,206,788	24,626,707

From 1st June to 31st October.

	Imports.			Deliveries.			Stock.		
	1898.	1897.	1896.	1898.	1897.	1896.	1898.	1897.	1896
INDIAN	62,129,270	61,402,703	64,181,884	55,256,085	48,514,900	46,883,767	44,946,973	45,123,015	44,048,
CEYLON	42,094,772	42,330,904	39,087,998	40,865,894	42,635,664	39,562,674	18,222,172	19,648,420	18,082,
JAVA	1,404,620	1,467,200	1,757,000	1,469,090	1,733,060	2,147,180	593,110	486,360	597,
CHINA, ETC... ...	18,075,960	18,554,004	22,785,631	13,035,918	13,851,065	16,823,085	16,891,306	17,706,276	25,602,
TOTAL lb. ...	123,704,622	123,754,811	127,812,513	110,626,987	106,734,689	105,416,706	80,653,561	82,964,073	88,331,

PUBLIC SALES FOR SOUTH INDIAN TEA.

(AVERAGE FOR ALL INDIA 8·35d.) *November 4th.*

GARDEN.	Total.	Average.	Broken Org. Pek. or Flowery Pekoe.		Pekoe and Unassorted.		Broken Pekoe.		Pekoe Souchong.		Broken and Souchong.		Fannings, Du and Variou	
	Quantity	Price.	Quantity	Price.	Quantity	Price.	Quantity	Price.	Quantity	Price.	Quantity	Price.	Quantity	Pri
South Wynad ...	**210 p**	**6·56**												
Erramaculla ...	130 p	6¾	...	...	35½ c	7	38½ c	9	22	6¼	20	5¾	15½c	5
Perrindotty ...	80 p	6¼	24½ c	8¼	30	5¾	11½ c	7½	15	5½	...	...	...	..
Travancore ...	**917 p**	**6·80**												
Arnakal ...	78 p	7½	14	7¾	24	6¾	25	9	5	6¼	1	5½	9½c	3¾
Ashley ...	60	5½	...	...	32	5½	24	6	...	...	...	...	4	
Bison Valley ...	42	5¾	...	...	20	5¼	21	6½	...	...	...	...	1	
Carady Goody ...	114 p	6¾	23	7	24	5¾	30	8¼	3	5½	...	...	34½c	4½
Glenmary ...	108	7¾	47	7¾ 9¾	41	5¾ 6¾	...	...	...	...	...	...	20	
Penshurst ...	91 p	7½	43	7½ 9½	20	6½	...	...	4	5½	...	...	24½c	
Travan T E Co B A.	320 p	6	...	...	100	5¾ 6	112	7¼ 7½	11	5½ 5¾	7	5¼	90 p	3¾
„ „ Pamb...	95	7	...	...	25	5½	50	7½ 8½	20	5¼	...	...	...	...

IN AUSTRALIA.

The *Taiyuan* has arrived from Foo Chow with 365,000 lb. for this market. Ex this vessel business to arrive covers 1,750½ chests. At the auction sales of China sorts last week the trade made a stand against importers' demands, and business was restricted, but since the market has again become animated, and 1700½ chests have been sold. Ceylons are very firm, and full rates are being freely paid. Indians have also had good sales, 800 chests sold at 6d. to 7¾d. for common to medium, and at 8½d. to 11d. for fine.—*The Leader.*

COCOA.

At yesterday's auctions 2,795 bags were offered ; these met with a q demand, and only 2,000 bags found buyers at about previous prices.

We quote—Trinidad, middling to fine red 76s to 78s 6d, gray and mi red 75s to 76s ; Guayaquil, Caraquez 79s 6d, to 81s. 6d, Arriba 81s to 8 Ceylon, middling to fine 73s to 79s. Stock 112,083 bags, against 110, bags last year.

PLANTING OPINION.

A WEEKLY JOURNAL

WRITTEN BY PLANTERS FOR PLANTERS.

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SUBSCRIPTION.—Advance Rates: Yearly, Fifteen Rupees; Half-yearly, Eight Rupees; Quarterly, Five Rupees, and Monthly, Two Rupees, including postage. Single Copies, Eight Annas.

ADVERTISEMENTS.—The charge for line advertisements is 4 as. per line for the first, 3 as. for the second, and 2 as. for the third and succeeding insertions. Five-line (or shorter) advertisements from Subscribers will be inserted for three issues for one rupee; non-Subscribers will be charged two rupees.

DOMESTIC OCCURRENCE.—The fee for inserting a domestic occurrence will be *One Rupee* for each insertion, payable in advance.

N. B.—Remittances should be sent to E. C. Duft & Co., Proprietors, "Planting Opinion," 16/17, Armenian Street, Madras.

SEASON REPORTS.

TO OUR SEASON REPORTERS.

Please post your next reports to reach Madras on Friday, the 9th December, 1898.

Season Reports should be sent to the Printers, Messrs. Addison & Co., direct, and not to *Planting Opinion* Office.

Yercaud.

Shevaroy Hills, 30*th Nov.*—*Weather*—Very wet and a drizzle all day, but not heavy; total for November 23·12, total for eleven months 57·49. The heaviest November we have had for many a long year. *Crops.*—Picking has been started on most estates, and planters still hope to get their estimates. *Prices.*—Rs.10 a bushel of parchment has been accepted by a few, but Chetties are not keen on buying yet.

Kil Kotagiri.

Nilgiris, 23*rd November.*—*Weather.*—Up to date this year we have had more than ten inches of rain over our average, and we have still some 40 days to go to the end of the year. To date this month we have had over ten inches with only six fine days out of the 23. *Diseases.*—Leaf-disease is showing up badly in places, and is affecting the crop slightly; the dread disease is not so bad this year as in 1896 or 1897. *Labour* fairly flush, although this heavy rain did a lot of damage; a lot of coolies bolting in the heavy rain. *Health* is good just now: may it remain so. *Crops.*—We expected a rush, and it has not come; we will get a larger one later; we have had no sun to ripen up with; it is fine to-day but cloudy: may it remain so. *Works.*—Weeding is the order of the day, and weeds are rather bad throughout the district I am sorry to say; the healthiest growth I've ever seen.

South Mysore.

Mudigere, 30*th November.*—*Weather*—Has, on the whole, been fine and seasonable, thermometer from 50° to 80°, and only two days' rain, 26th ·45, 27th ·19. *Crop.*—After this rain most places will begin regular picking, but at least one place I know of has only just begun flypicking. The rain was not regular, so other places also may be behindhand with crop, which, on the whole, promises to be well behind average in point of time. *Leaf-disease*, generally speaking, has gone, but I hear of the commencement of a second attack in one quarter. I hope it will not be serious.

A good deal depends on the wind. *Labour*—Falling off. We shall see little local labour for the next two or three months; paddy cutting and thrashing will take all their time. *Grain.*—I am told that so little ragi comes to *sante* that one may say there is none. Other things are a bit easier. Gram would have been very cheap but for the very heavy rain at the end of the S. W. Monsoon in the maidan country. Paddy crop has probably been all cut in the maidan, though it was very late this year, and is just commencing here. *Health*—Continues good on the whole. Chickmaglur has had its cholera, but I hear that this year it was promptly disposed of without spreading far. Plague, too, seems to be kept in hand, and the disquieting rumours have given less trouble of late, though anything out of the ordinary run gives rise to a small excitement. *Cardamoms.*—Crop is very nearly finished, I think, on those places which only make it a bye-product, and it has been a good one. I have no news of the larger places, but was told that the promise was good.

THE LADYBIRD QUESTION.

IN our U. P. A. S. I. section to-day there appears a very interesting *précis* of correspondence received by the Association with reference to inquiries it made on the subject of the Importation of Ladybirds. There is also a note by the Chairman, in which he advocates a double-barreled policy: (1) to employ a man to make a study locally of the disease, and (2) to import a few ladybirds by letter-post (as has been done in Ceylon). Both these suggestions are excellent, and both will stand a little amplification. It may be remarked concerning the first that the man employed would have an opportunity not merely to study the disease, but to study a possible antidote, the *indigenous* ladybird. A few specimens of this are in the hands of the Secretary of the U. P. A. S. I., but their species has not yet been identified, and in the absence of anyone in Madras with the requisite knowledge and leisure to undertake the work, they may have to be submitted to Mr. GREEN, of Ceylon, or some other entomologist outside Southern India. Further specimens could no doubt be easily collected, and it would probably save both expense and time if the man selected to fire No. 1 barrel of the Chairman's gun were to be intrusted in the first place with specimens of indigenous ladybirds, so that he might know what, if any, "remedies" or "antidotes" are available *on the spot* in particular districts. When, subsequently, he visited any one or more of these districts, the knowledge he had thus acquired might be turned to account. There cannot be a doubt that among the varieties of Indian ladybirds one, at least, is likely to be an enemy of the green bug. Once identified, this particular ladybird might be "cultivated," and the risk, expense and trouble of importing *coccinellidæ* from abroad be avoided.

Perhaps it may help some enthusiastic planter to make a few selections, if we describe a few of the chief varieties that have been mentioned as likely to be found natural enemies of the coffee-planter's natural enemy, the *lecanium viride*. First, then, the *Rhizobius ventralis*, of which Mr. H. O. NEWPORT brought specimens from Queensland. This is a black ladybird, measuring between one-eighth and three-sixteenths of an inch in length and about three quarters as much in width. The body above is covered with a fine light pubescence, which gives the insect a grayish appearance. It is reported to be a general feeder upon scale insects, but to be particularly fond of *Lecaninæ*, or soft scale. Next, let us refer to a much larger speci the *Orcus australasiæ*. The beetles measure from thr sixteenths to a quarter of an inch in length, and are nea as broad. The colour is a bright deep blue, and the wi cases are marked with six reddish spots, four in a r across the front, and the other two behind, side by si Third, comes the *Leis conformis*, a little larger still, bei generally a quarter of an inch in length. It is yellow colour and bears twenty-two black spots on the dor surface. As the beetle grows old the yellow gradua changes to red. The above brief descriptions are tak from the report of the Cape Government Entomologist 1895. Mr. NEWPORT gives a similar description of t *Rhizobius ventralis*, except that he seems to consider it s smaller than would appear from the above. The *Orc australasiæ* he describes as almost round, and black, w three red spots on each wing case; smooth and shi He also describes a fourth insect, the *Cryptolæmus m trouzerii*, as much smaller than the Orcus, and much long than it is broad; its wing-cases are black and distinc hairy, but the thorax is of a dull orange yellow.

Now, as regards the importation of ladybirds from abro all we would urge is that there is no reason why t experiment should be confined to Queensland. Mr. HEN TRYON, the Entomologist there, has certainly had t advantage of discussing matters with Mr. NEWPORT, w would doubtless give him a very clear idea of what wanted. On the other hand, Mr. LOUNSBURY, the Entom logist at Cape Town, has transmitted *coccinellidæ*, w partial success, to Mr. E. E. GREEN in Ceylon. Th too, the Californian entomological authorities have h experience in supplying the Cape and Australia and oth places; and were, in fact, the first to start the system "international trade" in Ladybirds. It would be w therefore, we think, to give a trial to more than o country. At the same time, whatever is done in the w of importing ladybirds *by post* must be done with extre care. The insects will have to be provided with fo on the way. That food may possibly have to cons of pests of some kind. On arrival, due precautions must taken to prevent a spread of pests simultaneously with t propagation of ladybirds! This is the chief reason why is so desirable that an entomologist— not merely a plant however watchful—should be in readiness to receive t imported ladybirds and attend to their propagation. is at all times a ticklish thing for man to try to interf with "the balance of nature." It is mainly perha because he does so recklessly in regard to plant life, th disturbances of the animal world have occurred to give h trouble. Green bug becomes too plentiful because it afforded exceptional opportunities for propagating species. Try to remove these and exterminate the bu and the result may be an over-development of so other insect which, in turn, will prove harmful in some wa In short, the full effects and influence of encouragem of a particular species of insect cannot be foreseen. much the more need, therefore, for extreme precaution.

COFFEE STEALING.

WHEN the subject of coffee-stealing was discussed at t last meeting of the U.P.A.S.I., the only result was t passing of a resolution expressing regret at the delay th

had occurred in regard to dealing with the report of the South of India Planters' Enquiry Committee. This delay continues. So, no doubt, does Coffee-stealing. Might it not be well, therefore, for planters to try to adopt some remedial measures, in anticipation of any new legislation that may eventually be introduced? The report of the Enquiry Committee did not accept some of the chief suggestions put forward by planters. Its conclusions on the subject of Coffee-stealing may be summarised as follows :— That the provisions of Sections 5, 6 and 7 of Act VIII. of 1878 (Madras), which apply to purchasers of coffee, should also be made applicable to sellers. (Then, all growers who also deal in coffee would be bound to keep registers showing particulars in reference to sales of coffee corresponding to those now required for purchases, and it would be easy to ascertain the amount said to have been obtained by the dealer from his own garden or by purchase, and its disposal.) That, with a view to the ascertainment of the amount really produced at the dealer's garden, a section should be added to the Act by which the Madras Government may take power to prescribe forms for such books, entries, statistics and accounts as it may think necessary to be kept, made or compiled in Revenue offices or submitted to any authority, and by which also provision may be made for compelling the owners of all coffee-gardens to submit returns of coffee crop and to afford all reasonable facilities to karnams and others properly empowered for verifying such estimates and obtaining the information required in the forms referred to above.

It would be unreasonable for planters to expect at the outset *more* than the Committee has recommended, and it may be that they will get *less*. Is it to be supposed that the proposed measures will alone suffice to stamp out coffee-stealing? The Committee attached great weight to a remark in a report of Mr. Fawcett to the Inspector-General of Police, Madras, dated 10 January, 1895 : "The planters have it in their power, it may be added, to prevent all thieving on the road, a kind of thieving by which they have always lost very largely and which the police can never cope with quite successfully unless the planters do more to help themselves." Questioned regarding the precautions taken by planters to prevent thieving of this kind, Mr. Fawcett stated : "Some take none, sending coffee in carts in bulk just as if it were gravel; some seal the bags, common gunny bags easily broken into; and some few use the seamless bags sealed and packed within other bags, a plan which renders theft without discovery impossible. Some send part of a consignment thus, part in ordinary gunny bags, that in the seamless bags being available for check for the rest." Even if effect be given to the recommendations of the Committee of Enquiry, there will be as great need as there is now for precautions on the part of planters, and apart from any question of registration (which may well be left over for consideration after the Committee's report has been dealt with by Government) planters would certainly do well to consult together and try to adopt systematic and, as far as possible, uniform measures for the prevention of thefts. Mr. Jno. G. Hamilton gave some useful hints on the subject of coffee-stealing at the annual meeting of the South Mysore Planters' Association in March, 1897 (*vide "Planting Opinion,"* 1st May, 1897), and these would form an excellent basis for discussion of the subject generally and consideration of desirable preventive measures. Only the other day a similar question was considered by the Committee of the Planters' Association of Ceylon, which resolved that Government be asked to issue instructions for special vigilance amongst Government officers and native headmen in all districts, where cocoa and all low-country products are cultivated, as the Committee considers that those estates are specially liable to depredation during the crop season now coming on.

TEA.

WHEN writing week after week about Tea, it is with ever-increasing regret that we find Ceylon always in the first place. There is more said about Ceylon, and the news available is of more interest, than anything current about India. Ceylon is the superlative, Northern India the comparative, South India the meagre positive that barely escapes being termed a negation. Yet we continue to refer to Ceylon Tea because in the reports from representatives in America and Europe there is so much from which South Indian tea-planters *can* learn a lesson, if they will. There is very little doubt that Ceylon has for the moment solved the problem of the effect of demand upon values. We need have no fear of overproduction just yet while catering to meet the tastes of Australia, and America, Russia, Germany and other markets. Can the same be said of South India? In Travancore production is being rapidly extended. What about demand? True, Travancore—along among South Indian districts—has co-operated with the Indian Tea Association in regard to efforts to extend demand in the United States and elsewhere; but that is scarcely enough to place her on a level with Assam, for instance, which has a potent voice in the deliberations of that Association. We cannot but feel that in this matter of Markets, South India's interests are not well looked after. Perhaps the feeling is that the community down here is not wealthy enough to bear the strain of advertising and other expenses such as are incurred by Ceylon and the Indian Tea Association. Yet a little spent now might save a good deal of expenditure later. *Verb. sap.*

PRIZE ESSAYS.

To promote and stimulate the dissemination of information on subjects relating to the planting industries, and to encourage discussion on such subjects, we have decided to start a series of prize-essay competitions. The scope and duration of these will largely depend upon the manner in which planters respond in the first instance. If a fair number are willing to enter the lists, we will keep these open, selecting various subjects from time to time and doing all in our power to make the results interesting and instructive to readers. As an opening subject we select

THE LABOUR QUESTION.

THE PAST, PRESENT AND FUTURE SUPPLY OF LABOUR IN THE———— DISTRICT.

For the best essay on this subject from any planting district in Southern India, we offer a prize of Rupees one hundred.

The following few simple rules should be observed by competitors :

1. Write on one side of the paper only.
2. Give your name in full, and state address (not for publication, except in the case of the winner.)
3. Be as brief and concise as possible.
4. Cite your authorities where possible.
5. Mark your MSS., "Prize Essay Competition."
6. Submit not later than 14th January, 1899 (in Madras).

It should be clearly noted that all essays sent in will be the absolute property of *Planting Opinion*, and that the proprietors will have the right to publish them, in full or abridged or revised, in *Planting Opinion* or elsewhere, and to republish in pamphlet or book form. No limit of length is fixed, but brevity is strongly urged, and diffuseness will greatly prejudice an essay's chance of being a prize-winner. Every competitor should strive to be *accurate* and *concise*. Rupees one hundred will be remitted to the winner immediately after publication of the prize essay. It is hoped that contributors from all districts will compete, so that a really comprehensive series of papers may be forthcoming.

If the response made to this invitation be satisfactory, early intimation will be given of another prize competition.

NOTES.

Foreign Orders and Tea.

Ceylon and Darjeeling both execute Continental orders. Are any such known in this part of the world?

Tea in Northern India.

According to the Assam annual report on tea, Sylhet is well to the front in the yield per acre, although this year both it and Cachar will not do well.

A Ceylon Tea Factory burnt down.

The Tea Factory on the Knavesmire estate was recently destroyed by fire. The property is said to have been fully insured.

Ceylon Exports.

Tea exports are altogether 104,985,013 lb., being 4,715,325 lb. more than at the same date last year; while to the United Kingdom, the comparison shows a falling off of 1,685,767 lb.

Exports of Tea.

The total exports of Indian tea from Calcutta from 1st April to 31st October, 1898, to all ports is now given by the Indian Tea Association at 9,744,846 lbs. against 91,056,357 lbs. in 1897. The exports of Ceylon tea from January to 1st November were 100,285,557 lbs. against 94,386,042 lbs. in 1897, the increase being about the same as in the case of Indian tea.

The rise in Cinchona.

The *B. & C. Druggist* observes:—Quinine is the chief topic of conversation this week in London (November 10th) in our markets so far as the articles then dealt in concern us. Practically all the makers, except the leading English one, have ceased selling at last week's prices, but no official advance in the "combination" figures has been made. Cinchona Bark advanced over 1-16*d.* per unit at the London auctions on Tuesday.

Sinhalese Labour for Travancore.

The *Ceylon Observer* of 25th ult. reports:—"This afternoon Messrs. Finlay, Muir & Co. sent away between 50 and 60 Sinhalese by the B.I. S.S. *Hin en route* for Ammanayakanur, Travancore, where they w be engaged on building operations." The mild Tamil m evidently look to his laurels. We should say the Exchan comparing plantation cooly wages with carpenters' wag in Travancore, is decidedly "against India."

Russia and China Tea.

The Chemist and Druggist me tioned recently that Russia had eye on the tea trade. Matters have got to such a po that a continental official paper says that the completion the Siberian Railway will take the exportation out of t hands of the English, and give it to Russian merchan who will place it on the market at fifty to sixty per ce less cost. The tea will go to Irkutsk (South Siberia) land carriage, thence by the Siberian Railway, and Easte and Central European goods will be taken as return freig

Liberian Coffee in North Borneo.

The *North Borneo Herald* observes The first parcel of this year's cr of Liberian Coffee from Taritip Estate has been sold in Singapore, for $20.70 per picul clean coffee, a decided and welcome advance on the $17 at which some of the last crop was sold. Messrs. Guth & Co., when advising the sale, said:—The Coffee marke steady; supplies small and likely to continue so. We no reason to anticipate any decided fall while supplies co tinue to come in so sparingly.

Ceylon Tea for Russia.

The *Ceylon Observer* learns th the Russian buyers have been buyi freely in the Colombo market for some time, and says, four distinct firms are establishing branches in Colombo is evident that they mean "business," and see a future the Colombo trade. If we are not greatly mistaken, sa our contemporary, our direct exports to Russia next year w show a very consideraeble increase. Our informant h heard "10 million lb." estimated as probable, and adds: "I really don't think this will be far out."

Calcutta Tea Sales.

At the sales on 25th ult. 19,0 packages were sold. The gene quality of the sale was less attractive than recent offering owing to the large proportion of poor liquoring teas fr Cachar and Sylhet. There was less demand for all grad excepting a few fine lots; and prices declined a quarter a half anna on all teas worth over six annas, and two three pies on all teas under that value. Owing to t recent heavy shipments to the Bombay market, there w less support than usual from this source.

Colombo Tea Sales.

At the public sale of tea Colombo on the 22nd ult., abo 7,798 pkgs. = 630,977 lb. were offered, of which abo 5,540 pkgs. = 451,211 lb. were sold. A somewhat weak tone prevailed at the auction, this being most noticeable common and medium broken pekoe. Competition for le teas was well maintained, and prices though irregular we generally about previous rates. Amongst the finest te in the sale were: Queensland, Monkswood, Glasgow, Ag Ouvah, and Anandale. Amongst the low-grown teas go invoices were offered from Bokotua, Talgaswella, Clyd Putupaula, Eila, and Neboda. The last sale this year w

be held on 21st inst., after which there will be no sale till Thursday, 5th January, 1899.

Jadoo, Limited. According to the *Gardeners' Chronicle* :—The third annual meeting of the shareholders in Jadoo, Ld., was held at the offices of the Company, Palace Gate, Exeter, on Wednesday, October 26. Col. Halford Thompson presided. The Company, as we learn from the report of the meeting, is pushing the business in Continental countries, and in the colonies, but the turnover was small, and seems scarcely satisfactory : and, as the Chairman said at the meeting, the sum of £4,000 to £5,000 was required to still further develop the concern. They were, however, enabled to recommend a dividend of 5 per cent. per annum upon the paid-up capital. The sum of £200 1*s.* 4*d.* would be carried over to next year's trading.

The London Tea Market. Telegraphing to Colombo on 24th ultimo, Messrs. Gow, Wilson and Stanton reported that the market generally was steady, for teas with quality weak, while the market for poor liquoring teas was also steady. The price of fair liquoring Ceylon Pekoe Souchong was 6½*d.* and the average 8¼*d.* (the former the same as last week and the latter a farthing down). Reuter reported :—Tone of Ceylon Tea.—Common to medium kinds firm, others remaining quiet. Fair Pekoe Souchong he quoted at 5½*d.* (same as last week) and the average 8⅜*d.* (⅛*d.* down), 21,000 packages of Ceylon tea were offered for sale, of which 20,000 sold. Of Indian tea 49,000 packages were offered and 44,000 sold. The average was 8½*d.*, which shows a rise of ⅛*d.*

The Tea Duty in New South Wales. There has been a rush of clearances in Sydney, in consequence of the imposition of a duty of 3*d.* per lb. On the 8th ult. the market was in an excited state, and a general rush was made on stocks, with a desire to operate at something near ante-tariff rates. Taken as a whole, the market may be said to have advanced about 2*d.* all round for spot stocks. New shipments will necessarily have to pay the full complement of duty. In some instances sales were made with the proviso that, in case of the duty being removed, buyers will have the full benefit of the reduction, but, as a rule, buyers preferred to pay a slightly lower figure and take the responsibility. Sales were mentioned of over 2,000 packages of Chinas from 6½*d.* upwards, and 200 packages of Ceylon were placed at 10*d.* to 1*s.*, and 200 Indians at 9*d.* to 11*d.*; 50 packages of Pekoe Souchong sold at 6*d.* f.o.b.

The British Tea Duty. In a "communicated" paper in the *I. P. G.* we read the following :—China tea bears a heavier handicap than Indian, and long may this prevail; were the duty abolished, no doubt large quantities of inferior leaf would find their way into the markets, and were tea to become a non-excisable commodity, a wide door would be thrown open to re-driers of old and manufacture of spurious leaf. On planters' account, therefore, we are decidedly in favour of retention of the impost, both in the interests of producers and consumers. From strict enquiries made, we cannot agree with the opinion that there is a probability of the revival of China tea, and, as for competition from non-British growing sources, have pointed out, we consider conclusively, that no country can compete with India in tea growing owing to her possession of cheap labour.

Cacao Disease. Mr. J. B. Carruthers writes to the Colombo Press to explain an apparent misapprehension as to the fruit disease of Cacao. He says :—There is an entirely distinct fungus affecting the pods in addition to the canker fungus. I did not state in my reports that the canker fungus did not spread to the pods, as it is only recently that I have been able to be working with the trees in fruit to any great extent. This is not a new development of the canker, though we have only recently been able to observe and investigate it. I hope to explain this in my additional report. The methods prescribed to be used for the prevention of the fungus in the pods are the same, whether the fungus is one species or another. I do not consider that if measures are taken, as advised in all the reports, to destroy the pods with any sign of disease that cacao planters need view with any additional alarm the fact that the canker fungus spreads into the pods—indeed; it explains to a great extent the rapid increase of the canker on some estates at certain seasons of the year, and gives us reason to hope that now that we know what to do to combat it, we may be able more quickly to get rid of our enemy.

Close Plucking and Quality. Mr. A. Cooke writes to the *Planter* :—I believe that there is an idea that the tea leaf does not get to its best quality until the shoot is matured and has several leaves on it. But I dispute this, and I think that the leaf is best when it is still imbedded in the axil. The best Broken Orange Pekoe consists of these buds which are hardly visible on the shoot, but are released in the firing. And I think that two leaves and a bud are richest in quality as soon as the second leaf opens and shows; the bud each day after this increases the weight, but detracts from the quality of the shoot, until it has become three leaves and a bud, and I base my argument on the fact that when the shoot has stopped growing and become *bhanji*, the topmost two leaves are not good quality. I imagine that the quality of two leaves and a bud decreases according to the number of leaves below them, because, after growing three, four, five or more leaves (according to strength of the shoot), it grows *bhanji*, and then all know the *quality* is gone. For this reason I think it important to get round the

COFFEE SHADE TREE.

Sun-dried Erythrina Lithosperma loppings, &c., contain per ton :—

61·50	lbs.	Nitrogen.
57·38	„	Potash.
14·92	„	Lime.
13·68	„	Phosphoric Acid.

Seed cured under Messrs. Sutton and Sons' advice.

Orders should be booked early for the 1898-1899 crop of seed from the parent trees of above analysis at Rs.6 per pound containing about 2,000 seeds. *Germination guaranteed.*

Only thornless variety extant, and is not procurable anywhere save from the

MANAGER, ARIENKOW ESTATE,
Shencottah.

plucking in five days, so that no leaves are grown below the two leaves which are taken.

Pepper. The *London Commercial Record* makes the following interesting remarks, after observing that pepper has been "tightening":—It is generally felt, not only in London, but abroad as well, that the small supplies which are likely to reach our markets this season from almost all pepper-producing countries will not fail to have a strengthening effect on Pepper prices. The steadily declining shipments from the Straits have, no doubt, been responsible for the enhanced range of values, and the crop reports this season from that part are again favouring bulls. Tellicherry black, which seems destined to take the place of black Singapore in time, will, it is feared, experience a part crop failure, as the absence of rain has prevented a full development of the young crop. Instead of 4/5,000 tons, it is estimated that the yield will not exceed 3/3,500 tons, which, having regard to the fact that there are practically no stocks left—contrary to other seasons—must be considered a small crop, particularly as India will, through the failing supplies of Straits sorts, probably require more Tellicherry pepper than ever. From January to September this year the total exports to Indian ports amounted to about 3,000 tons as against 1,200 tons taken for shipment to Europe.

GENERAL ARTICLES.

THE U.P.A.S.I. SECTION.

[UNDER THE CONTROL OF THE SECRETARY, U.P.A.S.I.]

THE following is from a marked copy of *The Chamber of Commerce Journal* kindly sent from London, and relates to the deliberations of the London Chamber of Commerce:—

Coffee and Cocoa Trade Section.—Meetings of this Section were held on October 3rd and 10th, Mr. Robert Wales, Chairman, presiding. Mr. Wales and Mr. Hahnemann Epps were unanimously re-elected Chairman and Deputy Chairman respectively. The question of the contents of H.B.M. Consuls' Reports was considered with a view to suggesting special information regarding trade which it was desirable to obtain. The Section was of opinion that the delay in these reports reaching the public rendered them of little practical value, and they suggested that information as to the acreage of coffee and cocoa in cultivation each year and as to the shipment thereof from the various ports might be obtained. A communication from the United Planters' Association of Southern India regarding the classification of coffee was considered and referred to the General Produce Brokers' Association of London. A lengthy discussion took place in regard to the high dock charges on coffee and cocoa, and the paucity of import these articles into London compared with the import Continental ports, and a large and representative Dep tion was appointed to wait upon the Directors of the D Company to urge the necessity for a reduction of the ra

APPENDED is a *précis* of sundry letters received on subject of Ladybirds, together with a note by the Ch man:—

From Mr. W. T. Thiselton Dyer, dated Kew, 15th September, 189

This letter is founded on a total misapprehension of the ac facts of the case. Mr. Dyer says that the costly experiment foredoomed to failure from the first, because we acted "under impression that any ladybird would attack any scale." Sugg consulting Dr. Bourne.

Prof. Blandford, 48, Wimpole Street, London, W., 18th Sept., 18

Suggests consulting Mr. Ernest Green of Ceylon and the S Entomologists of America, or of such colonies as have made ex ments; also suggests "that as the arrangements entered into Mr. Tryon seem to allow scope for experiment with different cons ments, it ought not to be difficult, even without expert advic arrive at the conditions necessary for success."

Points worthy of consideration: (*a*) the particular brood sele for exportation, which should be preferably one that norm hibernates, (*b*) the length of time elapsing between capture of insects and refrigeration; if not frozen at once after capture, ins should be fed to keep up their vitality; the temperature shoul lowered gradually, and insects provided with moss in whic hide themselves, as in hibernating under natural influences an thawing out *E. converso.*

Fluctuations of temperature, provided it does not rise above critical point, are probably immaterial. If the insects are once warm they must not be again exposed to cold, but must be fed, and for purpose a Wardian case with scale-infested plants should be u care being taken not to import a dangerous species of scale. importation of ladybirds in these Wardian cases might attempted concomitantly, care being taken not to allow the scal escape on arrival and the plants to be burnt and cases disinfecte

Rodolia iceryæ, a South African ladybird, has been successf shipped from Cape Town to New Zealand (passage 21-22 d simply by putting the insects into a bottle with plenty of "bugs feed on; Mr. Koebele's importations from Australia to Califo were, it is believed, also partly conducted without refrigeration. these cases it is not necessary to collect perfect insects, but la could be shaken into a beating net. Prof. Blandford has rece live insects from India, West Indies and S. America by post, ladybirds might similarly be sent from Australia to us in ventil boxes supplied with scale and with loose soft packing on the outs

Suggests the scientific study of the relationship of ot predaceous insects to the *Lecanium viride.* To import the ascertai enemy of a particular scale in its own home is justifiable, but wholly speculative to introduce a species of insects which are actually known to prey on the kinds it is intended to destroy, w Prof. Blandford imagines to have been the case with us.

Imported varieties only flourish if there is an entire absenc any indigenous insects of the required capabilities, or if the impo variety have greater predaceous activity, or possess in their home a capacity for multiplying and flourishing which the indiger varieties do not possess, as is the case with some of the ladyb imported to America. This probably applies with still greater f to the Hawaiian islands, under the well-known rule that introdu species tend to become dominant in islands, owing probably to limited indigenous fauna. But there is little evidence to show this would be the case in India. It is therefore desirable to study indigenous enemies of *Lecanium viride.*

What is the natural home of the scale? If in Ceylon, its in enemies should be studied there. Possibly the remedy is at door of the mischief.

From the Secretary, United States Dept. of Agriculture, Washingt 16th September, 1898.

Suggests that as Mr. E. E. Green, of Ceylon, is already experim ing on the subject, his advice should be asked.

R. VENKIAH BROS.,
PHOTOGRAPHIC ARTISTS, 161, MOUNT ROAD, MADRAS.
SPLENDID OFFER TO THE PUBLIC.
RX. Send us your Photograph, and we will reproduce a beautiful enlargement, framing size 18×14, highly finished in monochrome without injury to original, framed complete, Rs.15.
NOTHING EQUAL TO THESE IN THE CARNATIC.
[2-10-98—t.f.o.]

The experience of the United States with imported ladybirds is briefly as follows:—In 1888 a ladybird known as *Novius Cardinalis* was introduced from Australia which almost completely destroyed the white scale, an insect which was ruining the citrus growing industry of California. Later, Mr. Koebele, under the auspices of the Californian Board of Horticulture, brought over a dozen kinds of ladybirds, the most valuable being *Rhizobius ventralis*, a very effective enemy of *Lecanium oleæ* which was attacking the olives in California and subsequently introduced the *Cryptolæmus Montrouzieri* to the coffee plantations of Hawaii with success. The department has also sent successfully the *Novius Cardinalis* to Alexandria, where it destroyed a scale pest attacking the figs and to Portugal, where it destroyed the white scale attacking the citrus plantations. Summing up, he says that these experiments show that great good can be done where the plant is itself an introduced species and its natural enemy can be brought from the country of its origin, but unfortunately he does not state in any one case how the predatory insects were imported.

From the Royal Agricultural Society of England, Zoological Laboratory, Cambridge, 3rd Sept., 1898.

Regrets that they can give no special information, but remarks that if the scale pest is imported, the plan would be to ascertain wherefrom, and seek the ladybirds from that quarter.

From Mr. Lounsbury, Cape Town, 29th September.

Begins by warning the Association against being too sanguine of successful results from the colonisation of exotic *coccinellidæ*. The subject is complex, including not only the relation of the injurious insects to their enemies, but also the relation of the insect to its plant food, and the relation of both insect and enemy to climatic conditions and other factors. Has been trying for three years to import species to alleviate their scale-insect sufferings, to get a natural enemy to subdue their *Diaspinæ* pest as the *Novius Cardinalis* has subdued the *Icerya purchasi*, but has little hope of success. Like former writers, he says the proper way of setting to work is to find out where the pest comes from, and then to seek its natural enemies; but this requires a wide knowledge of the whole subject and unlimited funds. An inferior, but easier, plan is to secure from similar climates species whose establishment is known can do no harm and may do good, the theoretical advantage being that new enemies to the pests are introduced which have been relieved of some of their checks and which, therefore, may multiply exceedingly and prove correspondingly beneficial.

As to transport, in cool waters and with careful attention, possibly the best plan is to send the insects on scale-infested plants in Wardian cases on deck; secondly, as advised by the U. S. A. authorities, to pack the insects with a plentiful supply of food interspersed with dry moss in a wooden box wrapped in stout paper, in a cool chamber of uniform temperature of, say, 40 to 45 degrees; thirdly, by letter post. He has sent a consignment of *Exochomus nigromaculatus* to Mr. Green in Ceylon in this manner. (*Vide* Mr. Green's letter dated 19th October.) Finally suggests that we should study already existing *coccinellidæ* of Southern India.

Letters from the Royal Microscopical Society, Hanover Sq., London; Royal Agricultural Society of England; Royal Society, Zoological Society, Dept. of Agriculture, Brisbane.

Are of no interest.

From Henry Tryon, Dept. of Agriculture, Brisbane, 21st Sept., 1898.

Considers that *Cryptolæmus Montrouzieri* will prove eminently serviceable in coping with mealy bug; it has done good work in the Sandwich Islands, and is readily obtainable in Queensland. That the insects should be landed in Colombo under the supervision of Mr. E. E. Green, and thence distributed with regard to transport, in a somnolent condition induced artificially by cold. Has nothing to add to the information already given to Mr. Newport. Is still convinced that it is practicable. As an alternative procedure, feeding the insects *en route* is worth considering. For this purpose a food supply should be established at Colombo, if no endemic species of mealy bug be prevalent there, *Dactylopius Aurilanatus* should be established, as it exclusively affects Auricaraceous plants and could readily, therefore, be kept under control. To forward the beetles to Ceylon, Auracara Bidwilli pines, infected with its special Dactylopius, should be put in securely closed plant cases with the Cryptolæmus ladybird.

Larvæ cryptolæmus should not be sent for fear of forwarding at the same time the Cryptolæmus hymenopterous parasite which would make the experiment barren of result. It would be moreover expedient to collect and remit the beetles shortly after they have hatched out from the chrysalis so as to get the full term of their existence in the imago state. November is the best month for collecting. Mr. Tryon ends by recommending the Association to employ a trained entomologist, though this conclusion is not to be regarded as in any way disparaging the efforts made by Mr. Newport, for he must highly commend the zeal displayed by him in the work that he undertook.

From E. E. Green, Honorary Government Entomologist, Pundaluoya, Ceylon, 19th October.

Reports the arrival of a consignment of the ladybird *Exochomus nigromaculatus* from the Cape of Good Hope, packed in moss in a wooden box with an ample supply of food and sent by post. They arrived in four weeks' time.

Five living beetles and four young larvæ, evidently born on the voyage, were discovered to be alive; of these three beetles and two larvæ died soon after arrival. The rest are healthy. He considers that this experiment proves that ladybirds can be sent successfully by letter post, especially from Australia, whence the transport is shorter. Advises the inclusion of as many larvæ as possible. The food supplied was cochineal insects (*coccus cacti*) upon branches of the prickly pear (*opuntia*)—a judicious choice, as the insect is restricted to this one plant and, therefore, not likely to become a step.

He has been feeding his beetles upon *Lecanium viride* and *Pulvinaria psidii*. They prefer the large egg masses of the latter, but also wipe out numbers of the young larvæ of the lecanium and would, he thinks, readily subsist on lecanium, in the absence of other scale insects.

From A. G. Bourne, Adyar, 30th October, 1898.

Regrets that owing to press of work he is unable to carry on investigations. It would require long and careful investigation on the spot.

But he might be able to train and depute one of his old students to work on the spot and send him specimens. If this was done, and such a man secured, he would require a small salary in addition to expenses.

He thinks that the fungoid growth discovered by Mr. Hodgson deserves further careful investigation.

From E. E. Green, Pundaluoya, Ceylon, 5th November, 1898.

Commenting on Mr. Lounsbury's letter, says that he is quite right to warn us not to be *too* sanguine of success, but the possible benefit is well worth the risk of failure. He thinks we should try different parts of the world, preferring those of somewhat similar conditions of climate.

Where we have to deal with extensive areas under a single product artificial treatment is really impracticable, and that our only hope lies in natural remedies.

In continuation of his former letter, adds that a few young larvæ have recently appeared in his breeding jars. He hopes to be able to rear these and to obtain a third brood.

From the Secretary, Horticultural Department, State Board of Horticulture, California, 26th October, 1898.

They were the first to take hold of this matter, at a time when the question of importing beneficial insects from other countries was unknown. Believing that they could accomplish great good by introducing the natural enemies of all scale insects that had been imported upon plants, trees, &c., they sent an expert to Australia and adjacent countries, whence he sent numerous beneficial insects, some of which proved eminently successful.

From the General Secretary, Agricultural Bureau, South Australia, 2nd November, 1898.

They have numerous *Leis conformis*, *Rhizobii*, *Novius* (or

FOR SALE.

Hybridised Maragogipe Coffee Seed. Rs.50 per bushel.

Apply to J. G. FINDLAY, Esq., *Coonoor.*

[w. 3-12-98—17-12-98.]

Vedalia), &c., but no Entomological department nor any means for collecting. Generally speaking, these agencies keep indigenous *coccinellidæ* in check, but they have had trouble with imported species which have been introduced without the enemies which prey upon them. They have not succeeded in introducing the fungi, bacilli, &c., which in some countries keep insect pests within bounds, and they find that most natural agencies require *special* climatic conditions. The one absolutely effectual destructive agent, in regard to individual trees affected with scales, is fumigation with hydrocyanic acid gas under an air-tight tent.

Note on this Correspondence by the Chairman.

As all the great authorities consulted are unanimous in suggesting (at any rate as a concomitant measure) the study of the indigenous enemies of the *Lecanium viride*, it seems to me that our first step should be to accept Mr. Bourne's suggestion and to employ one of his students in studying some estate badly infected on the Pulneys or Nilgiris. Secondly, I would suggest, as it will cost but little, to ask Prof. Tryon to send a few consignments by letter post and have them addressed direct to some gentleman in the infected districts, who would undertake to help out the experiment. Possibly Mr. Bourne's man would be the best to employ for this purpose.

But obviously from Prof. Tryon's letter, if anything is to be done this season, it should be done at once.

(Signed) GEORGE ROMILLY.

DAILY TELEGRAPHIC REPORTS.

LONDON.	*Nov.* 25.	26.	28.	29.	30.	Dec. 1.
Bar Silver ...	27 3/4	27 5/8	27 1/2	27 5/8	27 9/16	27 7/16
Bank Rate ...	4	4	4	4	4	4
Coffee—						
Nilgiri, ave. (B) siz.	64	...	...	...	...	...
Mysore „ (B) „	...	...	...	...	...	...
Wynaad „ (B) „	63	...	...	...	...	...
Middling Ceylon	94	...	...	...	...	...
NEW YORK.						
Coffee—Fair Rio ...	6 1/8	6 1/8	5 7/8	6	6	6
Futures, Feb.	5.31	5.36	5.49	5.42	5.37	5.45
Silver—Comml. Bars	60 1/4	59 7/8	59 5/8	59 7/8	58 5/8	59 1/2

COFFEE STATISTICS.

Imports of coffee into the United States:—

IMPORTS COFFEE.

Year ending June 30—	Net imports. Pounds.	Value. Dollars.	Av. import price, ℔ lb —Cents.	Per capita population Pounds.
1883.....	478,502,125	38,155,251	8.2	8.91
1884.....	508,632,863	46,955,394	9.3	9.26
1885.....	539,264,356	43,389,270	8.2	9.60
1886..... ..	537,211,781	40,145,304	7.6	9.36
1887.....	500,819,587	53,416,200	10.7	8.53
1888.....	408,562,775	58,670,737	14.0	6.81
1889.....	561,132,100	72,139,897	13.0	9.16
1890.....	490,161,900	76,750,979	16.0	7.83
1891.....	511,041,051	94,628,119	*19.0	7.99
1892.....	629,671,748	126,395,317	*20.0	9.61
1893.....	551,395,250	78,444,496	14.0	.2
1894.....	547,068,994	89,600.572	16.4	8.01
1895.....	643,234,766	94,599,880	14.7	9.22
1896.....	572,671,840	83,534.366	14.6	8.04
1897.....	724,559,536	79,893,943	11.0	9.95
1898.....	851,891,346	62,674,241	7.3	11.04

*Overvalued by reason of depreciation in Brazil paper milreis.

'CHEESY' TEAS.

THE following letter has been received by the Secretary o Indian Tea Association, London, from the London Wholesale Dealers' Association :—

ERNEST TYRE, Esq., *Secretary, Indian Tea Association, Londo*

DEAR SIR,—Reports have reached my Committee that some have a cheesy taint, and in certain instances have consequently thrown up.

From exhaustive inquiries made, it is supposed the cause of cheesiness is that the wood used in the manufacture of the pack is sometimes put together in a green state, and the action of heat causes the sap to exude, which sap working on the lead li produces the cheesy smell in the wood and lead.

This injurious effect may take place either during the trans of the chests from the gardens to Calcutta, or in the hold of steamer during the voyage to England.

This fault is not found in metal packages, or in chests made wood imported into India from Japan, as such wood is thorou seasoned before the packages are actually made up at the garde

Another matter respecting dust teas has also caused consider inconvenience, by the chests being in some instances so inse that carriers refuse to take them on account of the claims for l age.

I am, therefore, desired to ask if your Committee could kindly their way to induce importers either to adopt better seasoned w to meet the first case, and in the matter of dust teas to have t packed in some well-tested and approved metal chests.—I am, Sir, yours faithfully, R. SEDGWICK, *Hon. Secretary, London Whol Tea Dealers' Association.*

COFFEE IN SOUTH SYLHET.

THE Correspondent of the *Planter* writes: October prices rulin London show a large range between the highest and the lowest f 30 shillings to 150 shillings per cwt. On the face of this a re valuation of South Sylhet grown coffee of 104*s.* per cwt. is very s factory indeed to those planters who had suitable land and plant with this product. Some few weeks ago I alluded to a row of c bushes in a bungalow compound that I had known for the last years and which had been fruiting heavily every year, and had sh no signs of disease. I had the opportunity a few days ago of exa ing the same bushes and measuring them. I found them to ave 9 feet in breadth and 7½ feet in height. The shape is a pyrami and as near perfect as you could expect a bush to be which has l left largely to its own resources. All the crop had been taken and although the manager could not tell me exactly how much t were of it, as he had only taken over charge a few days befor was informed that it was a very heavy one. Still they had not slightest appearance of exhaustion, with the exception of three of bushes which were growing under the shade of a gigantic lime t and any one who knows the excessively voracious appetite posse by this tree as well as the ramifying power possessed by its roots, not be surprised at these three bushes not looking so strong as buches growing further off on each side. None of those bushes (w the exception of the three alluded to above) were under shade, an far as I have been able to judge from the coffee I have seen grow in Assam and Sylhet, shade is not required if the bushes are growing upon teelas. When planted on teelas, shade, I believe absolutely essential, as well as mulching at the commencemen the dry weather. . . . It is hardly credible that a crop of c does not take so much from the soil as an ordinary crop of tea, from the analyses by experts of both products, this would appea be the case. According to Mr. Hughes' " Coffee, Soils and Manur the constituents removed per acre by an average crop of co assuming 7 cwt. of parchment from 1,200 trees, would be—

Potash	10·6	usually present in soils in only limited quanti- ty.
Lime	1·5	
Phosphoric Acid... ...	2·1	
Nitrogen	11·5	

These figures do not include what is contained in the pulp and lea as these are not taken off the garden but returned to the soil.

MILLIE & REDMOND, late P. THOMPSON & CO., *Ootacamund, Engineers and Contractors.*

The amount of these four most essential constituents removed by six maunds of manufactured tea, which we may take to be an average outturn per acre, according to Mr. Bamber, is as follows :—

Potash	12·16
Lime	2·72
Phosphoric Acid	6·72
Nitrogen	22·00

Taking the aggregate of these figures, tea takes about double the quantity of those constituents per acre from the soil that is removed by coffee.

GRAFTING CACAO.

Mr. J. H. Hart, F.L.S., Superintendent of the Trinidad Botanical Department, writes :—

It has on more than one occasion been asked whether it is possible to graft *Theobroma Cacoa*, and hitherto I have not been in a position to reply in the affirmative. I have now to report for the information of the Society that experiments have been carried out at the Royal Botanic Gardens by inarching several varieties of Cacao upon young seedlings with all the success that could be desired ; and I hope that the grafted plants will be sufficiently hardened to be shown at the next meeting of the Society. The course pursued has been to inarch a branch of a desired variety upon a well-grown and healthy seedling, and the result has been that the union has taken place very freely, and there can be little doubt that in future any desired kind or variety can be perpetuated by this means.

I desire to point out the opening this process will afford for the extensive planting of any desired variety or kind, and that it will enable the planter to put samples of Cacao upon the market with less variation in size and quality of the bean than has hitherto been possible.

I also desire to point out that it may be possible, as it is with apples and pears in a temperate climate—by grafting weaker growing varieties upon kinds having a larger amount of vegetative vigour—to increase the yield of such kinds as that known as "Criollo," to as much as that of the more commonly productive varieties.

It will also be possible to maintain perfectly true any kind which may have arisen from seed, on any plantation, and to preserve indefi nitely any particular kind that may be desired. We have yet to prove, however, how the grafted plants will thrive, but judging from grafted plants of other kinds, I see no reason to anticipate that there will be any difficulty under this head. I recommend the practice as well worth the attention of planters who have on their estates single trees which are noted for the quality of the bean and the quality they produce.

CACAO DISEASE.

I have been requested by a successful and prominent planter to bring up before The Society the question of disease among Cacao trees in Trinidad for discussion. This gentleman has forwarded to me several specimens of (so called) diseased Cacao, but after a careful and lengthy microscopical examination, I have not been able to say that the pods have been destroyed by disease. I am free to confess, however, that there is possibility of disease arising in any culture, and therefore in Cacao ; but I must reprehend as strongly as possible the spreading of views that we have disease of certain kinds until it has been fully proved that such do exist, as it is calculated to do an immense amount of harm to the Cacao Industry. A strict watch-however, should be kept for anything which appears to be of a peri, nicious character, and planters would, I think, do well to forward affected specimens to me, to be transmitted to mycological authorties, if necessary. So far, I may say, I have not found anything of a pernicious charactor and I should be glad to hear my idea confirmed, that at present there is little cause for alarm.

PRODUCE AND PLANTING.

The Tea Duty Question.

We announced last week that the joint committee of the Indian and Ceylon Tea Associations had decided against any agitation for the abolition or reduction of the tea duty. This duty they opine bears more heavily on China tea than the British-grown product, and that it is better to leave things as they are. A representative committee, such as that whose decision we refer to, may be supposed to know what is best for the interests of tea-growers in India and Ceylon, and their verdict may be accepted in that light. So far as the political aspect of the tea duty is concerned, however, we do not imagine the views of the Association will count for much. If the consumer is content, the Chancellor of the Exchequer, we may be sure, will not thrust any change upon the country. But certain politicians who are advocates of a "free breakfast table" programme consider the abolition of the tea duty an item to conjure with when before their constituents, and if they can gain additional popularity from their supporters by a show of enthusiasm on the subject, the Chancellor of the Exchequer may be induced to agree with them. The voice of the consumer in this matter, if it were to make itself heard, is likely to prove a more potent influence than even the resolutions of Tea Associations, although at the present moment an opinion from a body of experts against any change in the duty may be very acceptable to the Chancellor of the Exchequer.

Last Week's Tea Sales.

Notwithstanding the continued liberal supply, the market for Indian teas generally shows a decidedly firmer tendency, says the *Produce Markets Review*. The increased strength in the statistical position is largely accountable for this, the deliveries for the past month, as will be seen by the following figures, being the largest on record. Although teas cannot be bought on quite such favourable terms as a week or two since, the advance is in no case sufficient to check the demand, as values continue sufficiently low to have a stimulating effect on the consumption. No important increase on the latest estimated quantities is anticipated, and as regards future prices it would appear safe to conclude that any movement will be upwards rather than downwards. The decrease in the stocks of other kinds of tea, particularly as regards the lower grades, will in a great measure throw the demand on Indian so long as the present range of values last, and it is quite possible that the deliveries will continue to show an increase on those of last year. Should, therefore, the imports reach the estimated quantity available for this market, the supply is not likely to exceed the requirements of the trade. On the other hand, there is still a considerable portion of the crop to come forward which will amply supply the market for some time to come, and this will tend to keep prices in check. For the past month the following are the figures compared with October last year :— Imports were 22,072,000 lb. and 19,880,000 lb. respectively, while the deliveries reach the heavy total of 13,185,000 lb. against 11,533,000 lb., but the stock is slightly smaller, a most unusual occurrence at this period of the season. Taking the deliveries for the five months, viz., from June 1 to the end of October, the increase is very pronounced, being no less than 6,741,000 lb. There has been no quotable change in the Ceylon tea market, the demand continuing good for all descriptions under about 10*d.* per lb., and previous values were well maintained.

The common grades of whole leaf tea were again much sought after, and realised fully last week's rates, while an occasional advance was noticeable. For the better qualities over 11*d.* and upwards the demand has been somewhat slower, and as buyers were not anxious to increase their stocks of these descriptions, irregular and sometimes lower prices resulted. At the public sales 24,690 packages were offered, of which about 1,900 were withdrawn. The following are the figures for the past month as compared with October last year :— The imports amounted to 6,950,000 lb. against 5,520,000 lb. and the deliveries were 8,431,000 lb. and 8,517,000 lb., respectively, while the stock stands at 18,222,000 lb. with 19,648,000 lb.—*Home and Colonial Mail.*

CEYLON TEA IN AMERICA.

A Letter from Mr. Wm. Mackenzie, Ceylon's Tea Commissioner in the United States, gives a sketch of the tea trade in America and Canada. As regards Boston he writes :—

One of our friends there said the business was "dead" ; another firm, that has spent much money advertising our teas during the last year, were going "out of the business," at once, and so on and so on. He then proceeds :—As regards the consumer, there is no doubt that with coffee so very cheap, he does not drink as much tea at 40 cts. as he did before the duty went on, when he could get it for 30 cts. But the very great decrease in the shipments of all teas to America so far this year,—a drop of one-third, from 52 millions to 35 millions to end of September is not due entirely to the falling off in consumption. Dealers are living from hand to mouth on old stocks, which

were in before imposition of duty. The stocks must be very low, and when replenishing begins, the imports should be large. Meantime, grocers are afraid to buy in case the duty should be suddenly taken off, and they be left with stocks on hand on which the duty had been paid.

In Canada, matters are very different. There is nothing so much advertised there as Ceylon tea. Not only are the papers full of it, but walls of houses and boardings on empty spaces in the towns are covered with large placards, while many grocers' shops have two and three signs in large white enamelled letters on their windows, "Sale in Ceylon Tea," "Monsoon," "Kotonna," "Blue Ribbon," "Tetleys," etc., etc. I came across four new packages the "Ceyloya," "Ceylon Tea," the "Rakwana," etc., etc. In Montreal, a large van was being drawn by four horses at a rattling pace through the streets, from the top of which men were throwing samples on to the pavement. This was a new brand, the "Anglo-Saxon."

All this advertising is very costly, and in somes cases is done at the expense of the quantity of the tea. I have learnt since coming over of two orders for 1,000 chests each, one for Calcutta, and one for Colombo, of tea to be delivered here at a fraction over 5*d*. The one for Calcutta is from a firm advertising Ceylon tea only, and boasting of their fine cup quality!

It is a matter for congratulation that, whereas the total imports of teas to the States, and Canada, show such an immense falling off, Ceylon teas are an exception. The shipments from Colombo direct, and *viâ* China, are two and-a-half times as much as last year, while up to end of September, shipments from London were slightly in excess of last year.

Were there a duty on tea in Canada, it is probable there would be discrimination in favour of British-grown teas. But as there is no duty, one will not be imposed on foreign teas to favour us. It is at present generally believed in Canada that a duty will be imposed next year, in which case it may be somewhat lower for our teas than for Japan or China teas. Several Canadian tea dealers expressed the opinion very strongly that Ceylons were rapidly ousting Japan teas in Canada. On the other hand a leading Japan dealer told me he never sold his imports so easily in Canada as this year. On quoting this statement of his to the former gentleman, they said "Very likely, because he never had so few to sell," exports from Japan having fallen off so much this year. Be this as it may, there is no doubt that although the Japanese are increasing their advertising in Canada, there is ten times as much noise made in that way by the offensive and aggressive Ceylon and India package people, as by the old dealers in China and Japan teas, who are the defensive party. I believe the special work we are now beginning in Canada will greatly aid our friends.

What Congress will do with regard to taking off the duty in the States or putting a similar duty on coffee, it is as yet impossible to say. Coffee is grown largely in some of America's new possessions, especially Porto Rico. A duty may be put on Brazil coffee to protect the newly acquired Colonies. In one of this morning's New York papers, it is stated that the cost of the war has been only about one-seventh of the 800,000,000 dols. appropriated for it. If so, the war duties may be withdrawn, unless, as is quite possible, every man who was enrolled for service and all his relatives be put on the pension list. So far this year, 17,000 new pensioners of the war which ended in 1864 have been put on the list. Pensions for that war have been doubling every three or four years since the ended, and now amount to £33,000,000 (not dollars) a year. men met on the street a few days ago. One said, "Glad war is business will be good now." "What is your business?" asked other. "Pension Attorney."

Mr. Mackenzie states that Ceylon Tea is being advertise 48 papers in the States.

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[w. 3-9-98—t.f.o.]

TEA COMPANIES.

Lanka Plantations.—The directors, in their report for the tw months ended June 30 last, state that the coffee crop shippe London was 247 cwt., against 572 cwt. last year, and real £1,072 11*s*. 8*d*. net. The acreage under coffee alone is nomin 164 acres. The total crop of cocoa gathered on Yattawatte amou to 1,509 cwt., against 1,272 cwt. last year, and realised £4,806. I ing the season 34 acres were planted with cocoa and 18 acres of avail land adjoining the estate have been purchased, making a total of acres new land. The cost of the land and the new planting charged to capital account. On the same estate 2,125 lb. cardam were gathered, realising £269. The tea received from the compa estates amounted to 731,593 lb., and has been sold at an averag 7·45*d*. per pound net, realising £22,840. Last year the comp received 701,112 lb., which was sold at an average of 7·53*d*. per po net, and realised £22,002. The cost of production has been increa by a further rise in the sterling value of the rupee. The aver rate at which drafts were negotiated on account of the season's cr was 1*s*. $4\frac{3}{32}$*d*. per rupee, against 1*s*. 3*d*. last year, this further representing a loss of about 1 per cent. on the ordinary share cap of the company. The net profits for the past year amounted £6,149, to which must be added the sum of £495, the balance brou forward from the year 1896-97, making together £6,645. Hav already paid a half-year's interim dividend on the six per cent. ference shares to December 31, 1897, amounting, less property tax £426, the directors recommend payment of the dividend on th shares to June 30 last, requiring, less property tax, a similar amou and, having deducted £1,398, being one-tenth of the sums charge suspense account during the ten years ended June 30, 1897, t further recommend a dividend of 5*s*. per share, being $2\frac{1}{2}$ per c free of income-tax, on the ordinary shares, amounting to £3, carrying forward a balance of £644 to the next account.

Ceylon Land and Produce.—The report of the directors for crop year ended June 30 last states that the amount at credi profit and loss account is £10,022, which, with the sum of £ brought forward from last year, leaves £10,778 to be distributed. July 1 last an interim dividend of $7\frac{1}{2}$ per cent. on the ordinary sha and 3 per cent. on the preference shares was paid, and the direct now propose to pay on December 15, 1898, the balance of the fi cumulative dividend on the preference shares (3 per cent.) and $7\frac{1}{2}$ cent. on the ordinary shares, making 15 per cent. for the year, a in addition, a bonus of 5 per cent. on the ordinary shares, all free income-tax. It is also proposed to transfer £3,000 from profit a loss account to reserve fund, and carry forward the balance of £1,2 subject to the directors' remuneration for the year. The crop tea slightly exceeded the estimates framed at the commencemen the company's financial year, and but for the drought experien during March, April, and May last, the intake would have been m larger. The cocoa estimates were secured, though the practi failure of the spring crop must be recorded. The net prices obtai for tea were again lower than those realised for the previous cr due partly to lower markets in London and Colombo and partly the rise in freights. The directors hope that the current ye estimate of tea will be realised, though at the moment the intak somewhat less than at the same period last year, owing to a rec rence of the drought; however, latest reports advise more favoura weather.

Doom Dooma Tea.—The directors have resolved to declare ad interim dividend at the rate of 5 per cent., free of income-tax, account of the 1898 season. The tea crop of this season to 31st amounted to 1,842,160 lb., as compared with 1,698,480 lb. to Oct. last year. The sales (up to and including that of the 3 ultimo) of 1,014,800 lb. in London have averaged $11\frac{17}{32}$*d*. per pou as compared with the average to same date last year of 926,640 at 1*s*. $0\frac{1}{32}$*d*. per pound, or with the total 1897 average of $11\frac{13}{32}$*d*. pound.

Clunes Estate Company, Limited.—An extraordinary meeting of the Clunes Estate Company, Limited, was held at the offices of Messrs. Whittall & Co., the agents and secretaries at Colombo, on 26th ult. It was resolved "That the directors be authorised to borrow a sum not exceeding R50,000," and—That a dividend of 8 per cent. for the year ending 30th June, 1898, be declared, payable on the completion of the negociations for the loan sanctioned by the shareholders. The Chairman said the directors hoped to pay the dividend by December 15th, by which time it was thought the loan would be completed.

Hornsey Tea Estate Company, Limited.—The total crop has been 146,226 lb., against last year's crop of 150,967 lb. The average sale price in London has been 8·95 per lb., against 8·72 per lb. last year, and 35 cents for tea sold in Colombo, against 32½ cents. The average rate of exchange is 1*s.* 4—3-32*d.*, against last year 1*s.* 2—29-32*d.* The cost of production has been 36 cents per lb., or at exchange 1*s.* 4 3-32*d.*, equals 5½*d.* f.o.b. Colombo, against 5*d.* per lb. last year. Prospects are more encouraging for the ensuing year. The crop from 1st of July to 20th September is 11,757 lb. made tea ahead of the corresponding period last year, and prices are satisfactory. The Directors after paying Mortgage Interest and Preference Dividend for the year carry forward £126 3*s.* 2*d.* to the debit of profit and loss account.

PLANTING IN TRAVANCORE.

COMMENTING on recent remarks of the British Resident, the *Western Star* says:—

Noting that the monopoly system affecting cardamom gardens has given place to a system of land tax, the Resident is disposed to believe that the change has worked satisfactorily; for, says he, "after enquiry on the spot and after visiting most of the gardens, "I think myself it will prove successful." Cultivation is on the increase and a large number of applications for land have been put in already, chiefly by Europeans. "The native coffee cultivator," observes Mr. Rees, "is—not without some reason, it must be con- "fessed—looked on with extreme disfavour by his European "neighbour with his far larger estate, but this is an indigenous "and native industry; and the cardamom cultivators, who have "hitherto been clients of the Sarkar, will not, I hope, be crowded "out by the grant of all the land to neighbouring tea and coffee "planters. As for granting lands for homesteads, which is also "contemplated, the place is too feverish even for native cultivators "to inhabit. They only come up from Madura side for the cropping. "The dread they have of the fever, which in fact is most malignant, "and the extreme improbability of any proprietor settling there are "hardly appreciated at Trivandrum." But drawbacks like these have been overcome by European capitalists before now; and we have a notable instance in point in the case of the Shevaroy Hills, which, from having been once similarly dreaded and avoided by the Natives for like reasons, have now been converted into flourishing plantations and a health resort into the bargain. Those who may like to read how this remarkable transformation came about will find much to interest them in Mr. LeFanu's "Manual of the Salem District." By the way, our Planter readers, in search of fresh fields for tea and coffee cultivation, might do worse than make a note of what that writer records about the Yellagiri Hills, situated in the immediate vicinity of the railway junction at Jollarpet. *Revenons à nos moutons*, Mr. Rees notes that Devikolam *has* already become a great centre of planting activity, possessing a large population which is served by telegraphs and telephones,—the capital of the chief company carrying on operations, there being no less than £1,000,000, while there are other important companies and large private proprietors. As the Resident observes, there can be no gainsaying the assertion that these operations have an important bearing on the future of this State, though "their magnitude is as yet imperfectly "appreciated" by the local Government.

Here it will be of interest to turn to what Mr. Rees has to urge as to the requirements of Planters in the direction of road communications and other Public Works. Admitting the oft-urged need for a cart-road to connect the High Ranges with the low country, the Resident adverts to the fact that this road has been considered indispensable by the Travancore Government itself for administrative purposes; and it is noted also that "the North Travancore Land "Planting and Agricultural Society has urged with much force the "wants of this isolated Hill Range from the Planter's point of view "—the difficulty of supplying coolies with food, and the manner in "which its extensive operations are handicapped for want of a "communication with the west." Admitting and noting all this, Mr. Rees adds:—

I entirely agree with the late Dewan, with the late Resident, Mr. Grigg, who like myself knew the district, and with His Highness the Maharajah's Government in thinking this a most important requirement. Indeed, it seems to be much more needed than any other work which the Durbar has in hand, or under consideration, excepting only the Railway. It is remarked in the report that the "furtherance of the scheme belongs to the current year" (1073 M.E.). But writing at the eastern end in May, 1898, and after a recent inspection, I cannot say that progress has been at all rapid since I first went over the trace in 1896. Indeed, I fear that no serious work will be commenced before the June rains fall, and that the High Range will continue for another year to be practically more Madura than Travancore. It is true that a bridle-path has been opened since 1896, but for the cart-road not even an estimate has yet been prepared. The North Travancore Land Planting Association has, with extraordinary rapidity, cut a road from Moonaar to the head of the Kottgudi Ghaut, a distance of about 16 miles, whence a wire ropeway will shortly run to a spot on the plains within a few miles of Bodinayakkanur, thus further connecting the High Range with Madura rather than with Travancore. That this outlet should also be constructed cannot, at any rate to a servant of the British Government, be matter for other than congratulation, but it is somewhat astonishing that the Durbar should willingly see prolonged, even for a season, that isolation of this district by which, economic and administrative reasons apart, it has in the past been so much prejudiced. Now that there is a good prospect of the construction of a railway to Cochin within the near future, the need for action becomes more urgent, that port being within sight from many points in the district though distant by several days' journey. Yet this is already the largest tea district in South India, upwards of 12,000 acres being opened (chiefly under tea) against 5,000 in Peermaad. It is also probably the largest compact planting district, for North Mysore has about 12,000 scattered estates under coffee and Coorg 8,500 acres. The Nilgiri figures are not available.

All this should be congenial reading to our Planter friends, and vastly edifying to the Durbur authorities here; but Mr. Rees seems to have got heated over his theme and does not feel justified in dropping it at this point; for he presses the matter still more forcibly, thus:—

The last notes on business written by the late Mr. Grigg were upon the urgent need for a cart-road to the High Range from the west, and the exposure he underwent, travelling over the ground, is considered to have contributed in no small degree in the illness of which, very shortly after his return, he died. An extract from the late Dewan's letter to the Resident on the subject in 1895 is appended to this report.

This excerpt, as given in an appendix to the review before us, runs thus:—

The question discussed for Mr. Jacob [Chief Engineer] as between the eastern and western lines of communication is a very important one, and demands mature consideration. The high range is now shut out from all access on the Travancore side. As it grows in importance and interest, a through communication with the low country will have to be provided sooner or later for administrative purposes at least, if for nothing else. Otherwise, tract will remain isolated, and Government will have no small difficulty in coping with its administrative needs. No doubt the construction of a cart-road from Travancore low country to the high range will be attended with more than ordinary difficulties. The cost, too, must be abnormally heavy . . . . The difficulties and cost are not to be measured by the present advantages alone, but by those for all time to come. Future generations will forget the cost, but will enjoy the benefit in an ever-increasing degree as in the case of the Vurkalay tunnel, and the ghat roads to Peermaad, Aneikavan, Ponmudi, Muttukuli and Ashamboo. Mr. Jacob has failed to considered this aspect of the question.

Commenting on this document further, Mr. Rees observes that the district in question has advanced by leaps and bounds since Dewan Shungarasoobier penned these lines—activity in land buying and jobbing having proportionately increased, while administrative necessities have likewise developed immensely—"with an "expenditure of lakhs every month on cooly hire and communications "by the North Travancore Land Planting Association and other "companies and planters." The forcefulness of this welcome advocacy of the Planters' cause is pointedly accentuated by the Resident's concluding reminder, that the European population of the High Range now numbers upwards of 100, while the native population, excluding that of hill villages, may already be reckoned at about 10,000. Here we see our British Resident pulling strong in the right direction—with his head held just the proper way.

INDIAN TEA ASSOCIATION.

TEA AND STERLING PRICES.

A MEETING of the General Committee of this Association was held on November 7, Mr. G. G. Anderson in the chair. There were also present Mr. H. S. Ashton, Mr. A. C. Lawrie, Mr. M. R. Quin, Mr. T. Traill, and Mr. W. Warrington.

The following are extracts from the proceedings:—

It was reported the London Association had under consideration the subject of a proposal for the reduction of the present dnty on tea, as it was thought that the increase of consumption, on such a step being taken, might have the effect of supporting the prices in London.

The London Committee had before them the resolution of the United Planters' Association of Southern India in favour of a reduction being made, and a Sub-Committee had been formed, consisting of Messrs. W. H. Verner, A. Bryan, and C. C. McLeod, to meet the representatives of the Ceylon Association, with a view to discuss the measures to be taken in endeavouring to obtain a reduction on the duty. It appeared that dealers and brokers in the Lane were generally against the total abolition of the duty, but considered that the consumption of all classes of tea would be increased if a reduction in the duty were made.

The Committee had also considered the question of endeavouring to secure the enforcement of a compulsory cess on tea, but were informed that a considerable section of the Indian tea industry were not in favour of this proposal; and until unanimity could be secured, it would be impossible to obtain Government co-operation.

Also the Committee forwarded a copy of the *Financial Times* in which was a leading article on the subject of new markets. The writer mentioned that to anyone visiting America it must be apparent that there is a promising field for the working up and disposal of tea among the agricultural classes, especially in the North American continents, where tea is regularly drunk at every meal. Until recently green teas of China and Japan have been the favourite leaf, but during the last year or so experience had shown that the North American does not confine himself entirely to the Chinese product, and further efforts to introduce British-grown teas could scarcely fail to increase their consumption.

The London Secretary reported that the exports of British-grown tea into foreign markets continued satisfactory, the figures just published for the nine months from the 1st of January to the 30th of September showing that 5 million lbs. of Indian tea had been taken against $3\frac{3}{4}$ millions and $2\frac{1}{2}$ millions for the same period in 1897 and 1896. Of Ceylon tea $8\frac{3}{4}$ millions lbs. had been exported in the nine months, an increase of one million lbs. over 1897 and 3 million over 1896, while the export of China tea had dropped 2 million lbs. since the latter year. The home consumption was also most satisfactory, $96\frac{1}{4}$ million lbs having been taken in the nine months against 92 millions in 1897 and 88 millions in 1896; both Ceylon and China leaf showing decreases of 2 million lbs., as compared with last year for the same period. The total consumption of the country remained the same as last year, viz., $173\frac{1}{2}$ million lbs. The Secretary reported that the amount of contributions promised to the American Market Fund was Rs.95,852-1-6.

Recorded letter of 20th October from the Secretary, Bengal Chamber of Commerce, in reply to a letter dated 14th October from the General Committee, in which they expressed their regret that steps should have been taken, and Government addressed suggesting that an official should be deputed to proceed to China to make enquiries on the spot regarding the effect of the fall in the value of silver on production and prices, and on the effect this might be expected to have on exports to China, without the representation of the tea industry being given an opportunity of expressing their opinion on the subject, and also suggesting that in the event of sanction being accorded to this proposal, a gentleman of Commercial experience should be associated with the Government official in his mission. The Committee of the Chamber replied that when they took the matter into consideration it had not occurred to them that there could be any opposition to an enquiry being made into the condition of trade and currency in China in view of the meagre amount of reliable information available, as disclosed by the evidence before the Indian Currency Committee in London.

Considered letter, dated 30th Sept., from Mr. J. Buckingham, C.I.E., the Chairman of the Assam Branch, handing a sample of green tea which he had just made, and four cases of which he had despatched to London to be reported upon. The Secretary had been instructed to obtain a report from two firms of tea brokers this sample. Reports had been received from Messrs. Baines Co. and J. Thomas and Co. The Secretary was instructed to s copies of the brokers' reports to Mr. Buckingham, and also co to the London Secretary for despatch to Mr. Blechynden, and asked to inform the London Secretary that samples of green which were in demand in America had not yet reached Calcu though it was understood Mr. Blechynden would send some.

Considered letter from Mr. W. T. Carter, enclosing copy letter addressed by him to the *Englishman* on the subject of " and present low Sterling Prices." Mr. Carter suggested that merchants of India and Ceylon should combine to supply the re portion of the trade according to its requirements by placing on certain quantity of tea on the market every week throughout twelve months, so as to equalize to some extent offerings at auct and consumption month by month.

In support of this opinion Mr. Carter supplied figures compar the amounts of tea offered in London and consumed during the y 1896:—

	Offered in London. lbs.	Consumption lbs.
January ...	... 20,894,600	18,570,000
February ...	... 22,416,000	16,700,000
March ...	... 13,250,800	16,680,000
April ...	... 12,707,600	16,844,893
May ...	... 14,913,200	16,500,000
June ...	... 13,445,400	15,900,000
July ...	... 16,235,400	16,400,000
August ...	... 14,408,400	16,200,000
September ...	... 23,489,300	17,802,602
October ...	... 33,612,500	20,103,753
November ...	... 28,069,300	19,684,000
December ...	... 16,049,600	18,575,153

The Secretary was instructed to send a copy of Mr. Carter's le and figures to the London Secretary with the view to an express of opinion by his Committee as to whether any action in the ma could be taken.

Recorded letter from the Director-General of the Post Offic India, in reply to a letter of the 20th October, enquiring whet Government would be disposed to sanction arrangements for Ind tea being sold by Postmasters throughout the country, as is d in the case of the cinchona febrifuge. The Director-General sta that the proposal could not be entertained. Whatever might be merit of tea as a "useful and beneficial beverage" for the publi could not be placed in the same category as a medicine like quin and it would be impossible for a Government Department like Post Office to undertake a service of this kind on behalf of a priv Association. The Secretary was instructed to send copies of correspondence to the Secretary to the London Association. It suggested that the Indian Tea Supply Co. should be approache ascertain if they would undertake the disposal of tea dust if it w consigned to them free, in order to introduce the taste for among the poorer class of natives, and the Secretary was instruc to write to the agents of the Company to this effect.

NEW FRUIT TREE.

A NEW fruit tree is described by Andree in the *Revue Hort* The name of the plant is *Feijoa sellowiana*. It is indigenous i Plata, South America, but also thrives in Southern France. tree which blossomed and bore fruit in Andree's garden attain height of $3\frac{1}{2}$ metres, and had the form of a shrub. The fruit i oblong, egg-shaped berry, four to six centimetres long and thre five centimetres wide, retaining its colour even in the ripest co tion. The meat of the fruit is firm, of white colour and sweet t containing much juice, and giving off an extremely agreeable penetrating odour. The flavour is said to remind one of the apple.—*Public Opinion.*

NOVEL METHOD OF KILLING PLANT PESTS.

MR. H. E. SAMPSON, of Portland, in a letter to the Melbo *Leader*, states that he "treated certain diseased apple trees by bo a hole in the trunk, filling it with sulphur, and then stopping w plug. The trunk is only two inches in diameter, and the hole made with a three-quarter auger, which was worked until the came out at the opposite side. Until so treated the trees

infested with apple spot, woolly aphis and other pests, but are now free from disease. So bad were the trees at one time that some neighbours advised that they should be destroyed. During the 1897 season nine cases of saleable apples were gathered, and this year, in spite of adverse conditions, six cases were obtained. I desire," Mr. Sampson concludes, "to make these facts known for the benefit of all whom it may concern."

PLANTS AND ACETYLENE GAS.

A FEW days ago there was a "private view" at the Botanical Gardens, Edgbaston, of the installation of acetylene gas, which had been introduced into the houses; in the first place for the purpose of a garden party given to the United Kingdom Band of Hope Conference, and also at the close of the garden party given by the Health Committee to the Sanitary Institute Congress. There was a large attendance of members of the Botanical and Horticultural Society and others, and the various demonstrations and explanations which were given were listened to with much interest. In the course of the evening the Honorary Secretary of the Gardens, Professor Hillhouse, took the opportunity of saying that in the interests of the Society he had studied the light from two points of view—injury to plants from evolved gases, and relations with colour. He had gone through the houses with the utmost care, and had failed to see the smallest sign of any of those injurious effects which the combustion of coal gas had upon plants, and in this conclusion the veteran Curator of the Gardens, Mr. Latham, entirely agreed. The second point for inquiry received an equally satisfactory answer. The most critical colours, so far as artificial illuminants were concerned, come out of the ordeal with success. The mixed shades of mauve and magenta, such as those of Bougainvillea, were at least as perfectly displayed as with the arc light, while the various shades of yellow, from pale to deepest chrome, which were possessed by such a flower as the Allamanda, could hardly be more distinguishable in ordinary sunlight.—*Journal of Horticulture.*

CEYLON TEA IN AUSTRIA AND HUNGARY.

THE following are excerpts from a report by Mr. James Ryan to the "Thirty Committee," Kandy :—

VIENNA.

I arrived in Vienna on July 1st, 1898, and was met by Mr. Marinitsch, to whose intimate knowledge of that city and linguistic ability I am much indebted. Through his help I was able to do my work in Vienna and Budapesth at a considerable saving of time aud money.

HOW TEA IS SOLD IN VIENNA.

The Vienna tea shops are fairly numerous and are of the best class of shops gauged by a local standard. I was surprised to find tea in such general use as to make it in many instances the principal article sold, although as a rule coffee, spices and Japanese curiosities were sold in the same shops.

I visited a large number of these tea shops and purchased samples of teas, which I forwarded to the Secretary of the Ceylon Association in London for valuation and report. Messrs. George White & Co. examined these teas, but found them so out of condition that anything like a minute valuation was impossible. They report, however, that some of the teas had originally been of very fair quality. This might very well be the case, as the teas ranged as a rule from eight shillings per lb., one sample being retailed at about one sovereign English per lb.

In all instances China tea was recommended as the best. Ceylon tea was as a rule known by name, but was generally depreciated.

In one or two of the shops, however, Ceylon tea was procurable unmixed, and we saw it in the original packages—(half chest)—I noticed particularly the names of Abbotsleigh (pronounced in Vienna "Albertslake") and St. Johns. These teas were Orange Pekoes, wiry tippy and clean of dust.

MEMORANDUM *re* TEAS WANTED IN VIENNA.

It appears that only leafy teas—(absolutely free from dust and small broken and flat leaf)—have any chance in this market. The merchants tell me that their London constituents do not supply them with teas suitable to their requirements in this particular, but that Hamburg vendors do manage to do so. Complaints to London of dustiness are met with the reply that such a percentage of dust cannot be avoided. If this is actually the case, the cause may be due to the tea being broken in the repacking necessitated by the London Warehouse regulations, as my experience in Ceylon leads me to think that most factories sufficiently comply with the requirements of the Vienna merchants taking the teas as they leave the estate.

What struck me, however, was that, so long as teas were free from dust, the twist was not greatly looked to and wiriness was not directly recognised as a desirable quality. The most expensive, the "Caravan" and "Kaiser Melange" types (ranging from 12 to 20 shillings per lb.), contained a large percentage of leaf which was hardly rolled or fermented at all, very large and bold and of a Souchong type. Broken, flat leaf, however large, did not appear to be disliked, so long as it was free from dust and small broken leaf.

The tip when present was prominent, bold and silvery (not golden) in colour in these (China) teas. Dust then appears to be objected to mainly as a suspected impurity, and possibly as productive of too dark and pungent a liquor.

PRICE OF TEAS.

Even making allowance for a duty of nearly 10*d.* per lb. and the expenses of carriage *viâ* London and Hamburg or overland *viâ* Russia, the price of teas in general use in Austria is prohibitive of a daily consumption in an ordinary household. The teas are really good teas, but sold at an exorbitant rate, and it will be a hard fight to induce the trade to forego their present enormous profits.

Still there is a wonderfully large consumption of tea under the circumstances, and the demand appears to be on the increase, especially on the Galician frontier, where Russian influence is very marked, and this demand might be increased by the following means :—

1*st.*—A reduction of duty.
2*nd.*—Competition between dealers reducing prices.
3*rd.*—The spread of the knowledge of the fact that a good tea can be got at about a quarter of the present price.

I may add that I am opposed to the free distribution of tea, although I, at one time, believed strongly in it. I am now of opinion that a large proportion of tea distributed free is never consumed at all, but allowed to lie forgotten until it is spoiled, and unless tea, when drunk for the first time, is made by some one who knows how to properly infuse it, it stands a good chance of being actively disliked, and the advertisement works against instead of in favour of Ceylon.

Besides this there is the tendency a man always has to undervalue a thing he has got for nothing, whereas he values exceedingly what he has had to pay for, although he may have paid dearly for a bad article.

PROSPECTS OF TEA.

I am everywhere informed that the use of tea (even at the present prohibitive rates) is on the increase, and I have no doubt that a carefully conducted campaign will be productive of a further increase of consumption.

I cannot too strongly, however, express my opinion that we must have a reliable representative on the spot for some few weeks at least every year.

ADVERTISING.

Mr. Marinitsch has formulated a scheme for advertising Ceylon Tea by Posters and also by advertisements in the Press. It would be noticed that the cost of advertising is comparatively cheap.

GENERAL OPINION OF ADVERTISING.

Indiscriminate advertising must be avoided. In Austria, the populace is not an advertisement-reading one to the same extent as Germans are, and advertising generally is much less prominent, while comparatively few people advertise. On the other hand the small number of press advertisements secures greater attention being paid to such goods as are advertised.

HOTELS AND RESTAURANTS.

The only form of free distribution of tea that I would countenance would be that certain first-class hotels and restaurants should get a grant of tea (say 500 lb. weight), one half to be infused in cup and sold to customers and the remainder to be sold in packet—the whole profit to go to the vendor. There are several good shops in Vienna where the fashionable world goes to drink coffee and tea, and eat ices and confectionery of an afternoon, and one of these might be induced in the above manner to make a specialité, once or twice a week in the season, of Ceylon tea.

The others would be forced to follow suit if the thing became fashionable.

TEA FOR THE AUSTRIAN TROOPS.

Owing to the courtesy and help of His Excellency Sir Horace Rumbold, and Col. Wardrop, I was able to see certain members of the Imperial General Staff. In conversation, their attention was drawn to the military aspects of the late British Campaigns conducted on teetotal principles, and it was suggested that anything in the nature of an experiment as to the value of tea in Army Manœuvres would receive the co-operation of the Ceylon Planters who would guarantee that a reliable sample of tea would be supplied for purposes of experiment. The incidence of cost was not directly mentioned, but it was made clear that the planters were not acting as retail vendors, but as producers of tea, wishing, politico-economically, to extend their area of operations.

In reply we were informed that :—(1) No ration of tea was issued in the Austrian army; (2) that the Atbara and Chitral Campaigns had received appreciative attention; (3) that no compulsion was at present used to make the soldiers drink anything non-alcoholic to the exclusion of alcohol; (4) that the soldier could buy as much beer, wine, etc., as he liked in canteen (there is practically no drunkenness in the Austrian Army); (5) that if I could supply the General Staff with further detailed information as to the value of tea for forced work, that my communication would receive attention.

I suggest then that the matter be treated as follows :—

That a Sub-Committee be appointed to draft a treatise on the dietetic value of tea. An analyst would be the best man to procure for the scientific portion of the work, and a little co-operation from practical planters would be sufficient to give the work a permanent value. The pamphlet could be printed for permanent use in the extension of the use of Ceylon tea in Europe and America.

This pamphlet should be freely circulated among the medical press, and any favourable criticisms appended to later editions.

Your Continental Agent could personally approach professors of Medical Science in Austria and Germany on this point. Much attention is paid by the public to their pronouncements, and many of these gentlemen are already predisposed in favour of Ceylon tea.

CONCLUSION.

It must be noted that my report is to a certain extent barren of practical result, as I was not empowered to make any specific promise of assistance to certain persons who are willing to consider the question of dealing in Ceylon tea only, and this indefinite state of affairs must continue until your Committee have a discriminating representative on the spot.

A distinct offer to pay for advertising would bring forward, not one, but many firms of repute willing to give prominence to Ceylon tea.

CEYLON TEA IN HUNGARY.

The remarks made as to tea in Vienna practically cover the question of tea in Hungary. The Hungarians are a less conservative and more pushing people than the Austrians, and (although at present consumers of but a small quantity of tea) show signs of taking an increased amount in the near future.

TEA IN GERMANY.

In my passage through Dresden, Berlin and Bremen, I was able to note the large strides that are being made in the consumption of tea in Germany. I particularly noticed the efforts of Mr. Hagenbeck to push your staple in Berlin. He has expended a large amount of capital in the possible way, and I have no doubt will be successful in introducing tea to thousands of persons who otherwise would not have heard of it.

EXPORT DUTIES AND OPEN MINTS.

"X." writes in *Capital* :—

I wish I could think that a sliding scale of export duties, as proposed by Mr. Robert Gompertz and advocated by "Producer" in *Capital* of the 10th instant, would solve India's distracting currency problem; but unfortunately there are certain economic considerations in connection with the proposal which would seem, if carefully examined, to show that not even a sliding scale will bring us salvation.

To describe the suggestion of Mr. Gompertz as "the only suggestion that can be taken at all seriously" may sound a very comforting phrase, but "Producer" has apparently only looked at one side of the shield. For the course proposed by the Shevaroys planter unfortunately within it certain grave defects, which sooner or l would make themselves manifest. I have the full report of Gompertz' speech before me as I write, and to make myself cle will take the liberty of quoting from it as occasion may arise. speaker *inter alia* observed that the loss to Government, if the ru fell to 11*d.*, was estimated at 15 crores, but as part of this loss already covered by taxation, it was only necessary to consider the balance should be met. Producers, he continued, were q willing to have an export duty placed on their produce, provi that, if the rupee rose in value, or the export trade increased, duty should be proportionately reduced. Mr. Gompertz went o say that if Government would do this, they would be prepare bear their share of the burden by accepting an export duty of 2 cent. for every penny that exchange might fall below 1*s.* 4*d.* If proposal was adopted,—taking produce worth £100 in each case facility of comparison,—the producer would get the follow accounts :—

Exchange.			Export Duty.	Result.
s.	*d.*	Rs.		Rs.
1	4	=1,500	... Nil	... 1,500
1	3	=1,600	... 2%	... 1,568
1	2	=1,714	... 4%	... 1,645
1	1	=1,846	... 6%	... 1,735
1	0	=2,000	... 8%	.. 1,840
0	11	=2,182	... 10%	... 1,964
0	10	=2,400	... 12%	... 2,112

From the above, said Mr. Gompertz, it would be seen that if rupee fell to 10*d.*, which seemed quite possible, they would, af paying the export duty proposed, get Rs.2,112 instead of Rs.1,5 for every Rs.100 worth of produce. The lower the rupee fell, greater would be the loss to Government, the greater their taxati and the greater their gain!!

It may be worth while just noting here that this scheme rea originated with Mr. G. L. Acworth, who was chosen by the Sou Indian Planters as their representative before the Currency Co mittee; though, as Mr. Gompertz has prominently identif himself with the scheme *in loco parentis*,—no doubt because Acworth was at home,—I will continue to allude to it as the form gentleman's offspring in this article. In another part of his spee Mr. Gompertz said "the purchasing value (power I suppose) of t rupee has not materially decreased with the fall in the value of t rupee." He was here, as I understand it, contending that lo prices have risen very little for the labourer, &c., and that, howe much they may have risen, their rise has not been the result entir of the fall in the value of silver. My own opinion, as I have ende oured to show in *Capital*, is that prices of indigenous food stu have risen very materially in several parts of India, in the ma owing to quite other causes than the depreciation of silver, nor d think that the closure of the mints, so far anyhow as can be prov has made food stuffs appreciably dearer. This by the way howev

Now to come to the main argument. It may, I suppose, assumed, from the sliding scale quoted, that if exchange be 1*s.* 4*d.*, and the producer sells £100 worth of produce for which receives in India Rs.1,500, that he makes a profit on this trans tion. He may not, it is true, but it will be more profitable consider the case in which he does, as no man will continue produce for any length of time at a loss. To what extent exchan would fall if the mints were re-opened, and whether that fall wou be relatively rapid or otherwise, may be considered. Judging fr experience, I think we have no reason to suppose that with op mints the exchange value of the rupee would deviate much from t market price of silver. On the 1st of June, 1893, silver stood $37\frac{3}{4}d.$ per ounce. The rate of exchange, Calcutta demand, w 1*s.* $2\frac{5}{8}d.$ At 27*d.* per ounce, the metallic value of the 165 grains fine silver in our rupee would be 0·836 of a shilling; or s a very small fraction over 10*d.* Mr. Gompertz believes the rup might fall to 10*d.* I think he is right in this, and I think would fall to 10*d.* within a year. The producer then, who b been selling £100 worth of produce for Rs.1,500, would be getti Rs.2,400 for it, less 12 per cent. export duty, or net Rs.2,1 But the assumption is that it paid him to sell his produce f Rs.1,500. Then much more would it pay him to sell it Rs.2,112, or in the words of Mr. Gompertz "the greater gain." There are certain reservations about this greater gain, course, in the way of payments for imports; but, as Mr. Acworth t

the Currency Committee, labour paid in silver represents about 90 per cent. of a planter's whole expenditure in Southern India. However, supposing we admit the "greater gain." Does it not strike Mr. Gompertz that this gain *ex hypothesi* raises up at once a very awkward factor? I will here venture to quote a passage from John Stuart Mill, Book III., Chap. 3, Principles of Political Economy. The writer observes: "If the value of a commodity is such that it repays the cost of production, not only with the customary, but with a higher rate of profit, capital rushes to share in this extra gain, and by increasing the supply of the article reduces its value. This is not a mere supposition or surmise, but a fact familiar to those conversant with commercial operations. Whenever a new line of business presents itself, offering a hope of unusual profits, and whenever any established trade or manufacture is believed to be yielding a greater profit than customary, there is sure to be, in a short time, so large a production or importation of the commodity as not only destroys the extra profit, but generally goes beyond the mark, and sinks the value as much too low as it had before been raised too high, until the oversupply is corrected by a total or partial suspension of further production." Now, Mill may not be always right, but I think that few people with any adequate knowledge of economic questions will deny that he is absolutely right here, and every word in the passage I have quoted might almost have been written as a reply to the scheme of Mr. Gompertz. I am not a planter, and I cannot form any estimate regarding what greater area of India might be taken up in tea or coffee, and consequently I should not like to hazard a conjecture as to how much more capital might rush in to share this extra gain. But suppose—an extraordinary supposition—no more rushed in. We must take into account the factor of competition. If it paid A., as we say, to get Rs.1,500 for his £100 worth of tea, much more, again, would it pay him to get Rs.2,112. And if it paid A., then it would pay B. But if it paid B. to sell at Rs.1,500, it would also pay him to sell at Rs.2,012 or Rs.1,912, and the phenomena of commercial competition enable us to predicate, without straining the inference unduly, that something of this kind would most assuredly take place. The benefit of low exchange to the producer would thus tend gradually but surely to disappear. And if this benefit or gain disappeared, the contemplated "export duty" would disappear also, or in other words the very source of revenue, which Government are asked to depend upon, would have a continual tendency to afford them less and less support, and eventually no support at all.

The fact would seem to be that the contrast between an exchange of 1*s.* 4*d.* and an exchange of 10*d.* with the increased rupee results in the latter case has led Mr. Gompertz and those who think with him to lose sight of certain economic facts which no amount of mere arithmetic will alter. The contrast is so great, indeed, that an imaginary profit dazzles the eyes of the advocates of the scheme. Suppose the mints had not been closed. Then, when exchange was at 1*s.* 1*d.* as it was, if Government had proposed an export duty of 6 per cent. on produce, would producers have been able to stand that shrinkage in the margin of their profits? This is a fair question, because it deals with the producer's position from a fairly normal standpoint, without such abnormal factors as closed mints for five years and a drop in exchange from 1*s.* 4*d.* to 10d. If all the tea companies in India—to speak of tea—before the mints were closed had had to pay over to Government 6 per cent. or even 4 per cent. from their sale proceeds, such percentage must have decreased dividends in the same ratio—and then, where, I will ask Mr. Gompertz, would many tea companies have been? If the factors of supply and demand and competition rendered such an export duty impossible, then, is it not clear that the tea industry or any other producing industry (as soon as the sudden low exchange profit margins were swept away—as they would be) would find its future conditions much the same as its past conditions? Why should it be assumed that they should be different?

The foregoing remarks have reference in the main to the producer who is practically his own exporter, but I must turn aside for a moment to notice a passage in "Producer's" article of the 10th instant, in which he deals with the ryot. "Producer" says: "In fact, as the duty would be paid by the exporting merchants, all that the ryot would know about it would be that he would get more rupees for his produce than he did formerly." It seems to me that there is an obscurity of thought here, which fails to recognize the true essentials of the relations between exporting merchants and ryots. The increased number of rupees, consequent on a lower exchange, equally affects the exporting merchant as it would affect the planter producer.

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ON A TEA OR COFFEE ESTATE
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[w. 19-11-98—18-2-99.]
4

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Flannel Suits	...	...	Rs.25.
Serge Suits	...	...	„ 22 to 25.
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A Trial is solicited.
[w. 3-12-98—t.f.o.]

Any one conversant with the cotton, wheat, rice and seeds districts, knows how keen our big exporting merchants, Native and European, are, through their agents in the districts, to buy up produce, and how keen the ryot is, in his way, to do business. If an exporter with such a big margin of profit to work on can force the foreign market, he certainly will do so, and all this will certainly be reflected in ryot transactions. The very fact that such a drop in exchange would so swell rupee returns would tend to stimulate competition, over production and underselling. It is all very well to say the ryot would get more rupees for his produce than he did formerly. He would for a time—that is all. There are, of course, many other aspects in which the re-opening of the mints might be regarded. I have merely tried to point out here that this duty on exports under the assumed conditions is not at all free from very grave objections indeed, and likely to be highly uncertain, if not quite delusive, in the end. "Producer" grants there would be "some fall in gold prices and some rise in freights," and then takes up the question of increased import duties to counteract these effects. But he makes the assumed revenue from the increased import duties largely contingent on the imaginary profits accruing from a tremendous fall in exchange. The subject is worth a detailed examination, because it seems to illustrate veris forcibly the very real dangers that do wait on the re-opening of thy mints (and I for one should like to see them open *were it possible*) whatever may be urged to the contrary.

MARKET REPORT.

COFFEE.

Messrs. Wm. Jas. & Hy. Thompson's Report of the Colonial Markets for the Week ending November 9th, 1898, states :—

The spot market continues very dull, and sales are difficult. Fine qualities sold rather cheaper, other kinds being chiefly withdrawn. Brazil markets are firmer.

According to Messrs. G. Duuring & Zoon, the stocks at the European ports on the 1st inst. showed an increase of 4,400 tons, and the total visible supply an increase of 16,170 tons, being estimated respectively at 209,450 tons and 418,970 tons, against 205,050 tons and 402,800 tons on the 1st October.

Futures have fluctuated, but close decidedly dearer, prices showing an advance of about 3d to 6d per cwt., viz. :—Good average Santos in Havre, December delivery, fcs. 38.50, in Hamburg pf. 31¾, and No. 7 low ordinary Rio in New York $5.40.

Daily receipts averaged 6,800 bags in Rio and 15,800 bags in Santos.

To-day's London official quotations are :—

	Nov.	Dec.	Mar., '99.	May.	July.	Sept.
SANTOS ...	30/6	30/9	31/9	32/3	32/3	32/9

We quote :—

Ceylon, mid. to good mid.	101/	@108/	
Do. small to low mid.	79/	„ 99/	
East India, mid. to good mid...	70/	„ 92/	
Do. small to low mid.	58/	„ 72/	
Guatemala, mid. to fine...	66/	„ 98/	
Do. good ord. to low mid...	50/	„ 64/	
Salvador, good ord. foxy greenish...	38/	„ 42/	
Costa Rica, mid. to fine...	69/	@104/	
Do. ord. to low middling.	37/	„ 65/	
Jamaica, good to fine ord.	32/	„ 48/	
Do. greenish to fine colory...	65/	„ 120/	
African ...	26/	„ 29/	
Columbian, ordinary ...	36/	„ 43/	
Do. good ord. to low mid...	42/	„ 63/	
Do. mid. to fine...	64/	„ 98/	

Receipts in Brazil to 9th November compare as follows with previous years :—

	1898-99.	1897-98.	1896-97.
	Bags.	Bags.	Bags.
RIO	1,422,000	2,073,000	1,598,000
SANTOS	3,004,000	3,568,000	2,683,000
	4,426,000	5,641,000	4,281,000

The *London Commercial Record* of 11th ultimo reports :—

The supplies at auction have been on a small scale, and a generally dull tone has prevailed, although at the close there was more disposition to bid for the low priced descriptions. No Plantation Ceylon has been offered, and the few lots of East India sold slowly. Very moderate quantities of Costa Rica and Central Americn descriptions have been brought forward, and these were only partly disposed of at easier rates. A fair amount of business has been transacted in Columbian kinds at about previous prices, with an active demand for well-picked parcels. Owing to the smaller receipts in the Brazils the terminal market has been stronger, and closes with a firm tone at an advance in prices, viz. :

London	...Santos	...December delivery ...	31s. 3d.
New York	...No. 7 Rio	... „ „ ...	5.45 cents.
Hamburg	...Santos	... „ „ ...	32 pf.
Havre	...Santos	... „ „ ...	38½ francs.
Holland	...Good ordinary Java	... ...	34 cents.

Imports, Deliveries and Stock of Coffee in London are as follows :—

		STOCK.		IMPORTS.	
		1898.	1897.	1898.	1897
West India ...	tons	454	273	1,690	83
Ceylon ...	„	111	153	326	55
East India ...	„	1,406	1,411	5,637	5,23
Mocha ...	„	471	422	774	59
Brazil ...	„	4,086	2,788	3,892	3,06
Other Foreign ...	„	10,999	5,262	29,346	22,79
Total ...	„	17,527	10,309	41,665	33,07
		HOME CONSUMPTION.		EXPORT.	
		1898.	1897.	1898.	1897.
West India ...	tons	296	310	1,277	59
Ceylon ...	„	124	167	197	36
East India ...	„	2,200	2,093	3,138	2,53
Mocha ...	„	642	488	157	21
Brazil ...	„	854	1,218	1,926	2,29
Other Foreign ...	„	7,982	8,069	15,036	12,55
Total...	„	12,098	12,345	21,731	18,55

The preceding figures exhibit—

In the imports an increase this year of	8,594 tons.
Home consumption a decrease of	247 „
Export an increase of ...	3,175 „
Stock an increase of ...	7,218 „

Auctions during the week have passed off as follows :—

EAST INDIA.—110 bags partly sold—*Wynaad*, faded medium 5 *Shevaroy* 62s 6d.

LIBERIAN.—13 bags dull East India sold at 23s to 27s.

MOCHA.—101 half-bales retired.

JAMAICA.—243 barrels 25 bags rather more than half sold, good to ordinary pale 31s 6d to 39s 6d, colory 78s.

COSTA RICA.—Of 683 bags catalogued 370 bags sold, dull small 26 28s ; London-cleaned, smalls 29s, fine fine ordinary dull greenish 50s 60s 6d, middling 64s 6d to 65s, peaberry 56s.

SALVADOR.—80 bags sold—good ordinary dull pale 37s 6d, fine ordin 40s to 42s 6d.

VERA PAZ.—Of 168 bags offered, only 60 bags sold—dull palish small to 34s 6d.

COLUMBIAN.—2,820 bags catalogued and 2,150 bags sold, damaged 39s 6d to 41s, ordinary to fine ordinary pale 33s 6d to 41s, fine fine o nary to low middling gray 49s to 58s 6d, middling 64s to 66s 6d, g middling 75s 6d, peaberry 76s to 82s ; London-cleaned, smalls 26s 6 52s 6d, soft mixed dull greenish 56s to 61s, middling 63s 6d to 68s, g middling coloury 70s to 79s, good and boldish 80s to 83s 6d, fine coloury 100s, peaberry 60s to 95s 6d.

GUAYAQUIL.—56 bags sold—damaged 40s to 40s 6d, bold pale 42s 6d

PERUVIAN.—50 bags greenish sold at 48s 6d.

BRAZIL.—1,382 bags washed Santos bought in.

Receipts in Rio and Santos.

	1898-9.	1897-8.	1896-7	1895-6.
Nov. 9	Bags.	Bags.	Bags.	Bags.
Rio.....	11,000	5,000	18,000	17,000
Santos.....	13,000	26,000	24,000	19,000
Total 5 days				
Rio.....	36,000	89,000	70,000	44,000
Santos ...	79,000	107,000	100,000	64,000
	115,000	196,000	170,000	108,000
Since July 1				
Rio.....	1,433,000	2,078,000	1,616,000	1,155,000
Santos.....	3,017,000	3,594,000	2,707,000	1,802,000
Total.....	4,450,000	5,672,000	4,323,000	2,957,000
Crop.....	—	10,461,000	8,680,000	5,489,000

Exchange 8½d, previous day 8$\frac{1}{32}$d.

Havre, Nov. 10.—Market firm. Santos good average December ope at 38½f and closed at 38½f., March opened at 38¾f and closed at 39f.

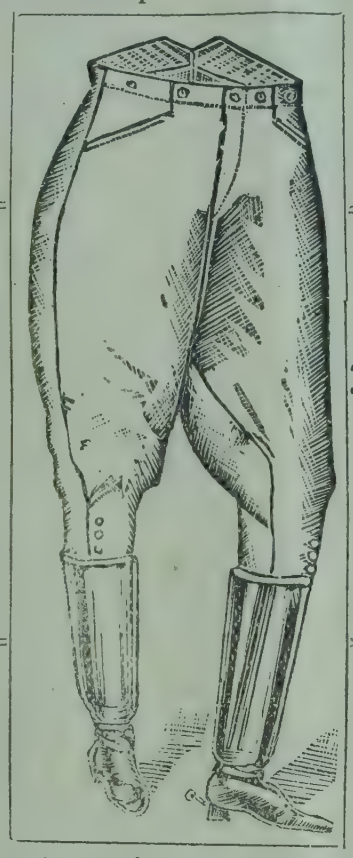
Hamburg, Nov. 10.—Good average Santos December opened at 3 and close at 31¾m.

New York, Nov. 9.—Closing prices of No. 7 Rio were as follow :—

	Nov.	Dec.	Jan.	Feb.
Nov. 9.....	5.25	5.40	5.50	5.60
Nov. 7.....	5.20	5.40	5.50	5.60

BREECHES TRADE.

Breeches-making is a *specialité* with us. **Mr. Smith,** the proprietor, deals with every pair, and we warrant turning them out to satisfaction as regards fit, style and workmanship.



OUR SPECIAL

MILLERAIN

KHAKI TWILL

8/8 BREECHES.

Putties 8 ft. long Rs.2.

Box Cloth Leggings Rs.9.

Newmarket Leather Leggings Rs.12.

Read this letter; it will convince you that we *can* make Breeches. **Mr. H. S. Dickins,** of Yercaud, writes: "*The Breeches received; they fit me perfect. I can, with confidence, recommend you as Breeches Makers to all my friends. We get our kit from Bombay, and have to pay about double your price.*"

[w. 1-10-98—31-3-99.] **E. D. SMITH & CO., MADRAS.**

WIELE'S STUDIO,

SOUTH PARADE, BANGALORE.

The Studio, *par excellence* for High Class Artistic Photography in all its branches.

BROMIDE ENLARGEMENTS from any picture, however faded or otherwise damaged, carried out to perfection.

OIL PAINTINGS, and Crayon Drawings unsurpassed.

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PHOTOGRAPHS of moving objects, such as horses in action, Ladies and Gentlemen riding their bicycles, &c., always successful.

Picture Framing in good Taste and First Class Workmanship.

VIEWS OF SOUTHERN INDIA.

Terms Moderate. MR. E. F. H. WIELE conducts his Studio personally.

[w. 15-10-98—14-1-99.]

TO PLANTERS.

PLANTERS WHO REQUIRE

Estate Tools,
Stores,
Medicines,
Machinery,
Bricks,
Tiles,
Portland Cement,
Ironwork (repairs, &c.)
Corrugated Iron Sheets, &c.,

are requested to communicate with

THE INDIAN TRADING CO., Ld.,

11/12, 2nd LINE BEACH, MADRAS.

Prices on application.

The following statement shows the movements of Rio and Santos from July 1, 1898, to Nov. 4, 1898, compared with the two previous years :—

	1898-9	1897-8	1896-7
RIO.			
Receipts .....bags	1,377,000	1,979,000	1,540,000
Shipments to Europe	369,000	733,000	377,000
Ditto United States	719,000	1,033,000	835,000
Stocks.....	437,000	410,000	320,000
SANTOS.			
Receipts.....	2,925,000	3,469,000	2,610,000
Shipments to Europe	1,827,000	1,989,000	1,568,000
Ditto United States.....	569,000	389,000	592,000
Stocks.....	1,062,000	1,170,000	540,000

To-day's catalogues comprised :—48 half-bales Mocha, 26 packages Jamaica, 39 bags Salvador, 40 bags Costa Rica, 871 bags Guatemala, 375 bags New Granada, 1,275 bags Columbian, 115 bags Coban, and 20 bags Peruvian. The sales went off without alteration in prices.

TO-DAY'S HAVRE AND HAMBURG COFFEE TERMINAL QUOTATIONS.

(Communicated by Mr. Edward Nauen.)

	Havre.			Hamburg.	
	10.15 a.m.	12.15 p.m.	3.30 p.m.	10.28 a.m.	2.30 p.m.
Dec., 1898	38½	38¼	38½	32	32
March, 1899.....	39¼	39	39	32½	32½
May.....	39¾	39½	39½	33	32¾
Sept.....	40½	40¼	40¼	33½	33½
	Steady. Value.	Quiet. Sellers.	Steady. Sellers.	Steady. Buyers.	Quiet. Buyers.

TEA.

Messrs. Gow, Wilson and Stanton's Indian, Ceylon, and Java Tea R dated November 11th, 1898, says :—

QUANTITY BROUGHT TO AUCTION IN LONDON

FROM 1ST JUNE TO DATE.

	Indian.	Ceylon.	Java.
1898-1899.	685,064 pkgs.	550,155 pkgs.	21,456 pkgs.
1897-1898.	681,551 ,,	574,432 ,,	18,487 ,,

50,262 pkgs. Indian
18,291 ,, Ceylon
1,544 ,, Java
} Total 70,097 packages were offered in public tion this week.

Good progress has been made in the export of Indian Tea direct Calcutta to foreign markets during the nine months ending 30th Sep tember. The re-exports from Great Britain also show an encoura increase.

It seems clear that both Indian and Ceylon Teas have now taken a grip of many of the most important foreign and colonial markets fact that an almost uninterrupted increase has been going on for se years past seems to show that when once a footing has been obtaine Teas from India and Ceylon, increased consumption naturally follows

Export of Indian Tea from Calcutta, for nine months ending Septe as shown by figures of the Indian Tea Association.

HIGH CLASS TAILORING.

We have now secured the services of Mr. W. J. Marden, whose experience as a Cut and Practical Tailor extends to a period of over 20 years in some of the leading houses England and India, and whom we can, therefore, confidently recommend as a veteran exp cutter. Having placed our Tailoring Department under his control, we guarantee per Fit and Style. This assurance, coupled with our proverbially Cheap Rates, will, we tr induce you to give us a trial order, which we respectfully solicit.

FREE CHRISTMAS GIFTS.

We are giving away 4 Bicycles and 200 useful Prizes. Numbered Ticket is given the purchase of every 2 Rs. worth of goods. Drawers of the lucky numbers will receive prizes free.

ROYAL EMPORIUM,
BANGALOR

[w. 3-9-98—t.f.o.]

Agents for LEA & PERRINS' **WORCESTERSHIRE SAUCE.**

CROSSE & BLACKWELL'S, LTD.

By Special Warrant Purveyors to **The Queen AND Empress of India.**

CELEBRATED OILMAN'S STORES.

[w. 1-10-98—t.f.o.]

	1898.	1897.	1896.	1895.	1894.
Australia and New Zealand ...	3,691,538	3,838,259	3,903,336	3,516,817	3,681,876
America ...	1,496,966	1,302,124	699,080	614,792	223,263
Other Places ...	5,496,648	3,927,154	3,764,691	2,811,927	2,336,328
Total outside the U.K.	10,685,152	9,067,537	8,367,107	6,943,536	6,241,467
United Kingdom ...	80,622,110	80,020,341	77,749,911	72,617,543	71,124,647
Total lbs. ...	91,307,262	89,087,878	86,117,018	79,561,079	77,366,114

Indian. Prices were well supported for grades up to about 9d. per lb.—the class of Tea which furnishes the main portion of the country's consumption. Medium Pekoes and Broken Pekoes were not in such strong demand, unless in cases where the liquors were exceptionally fine. The quality of recent arrivals shows little change, Assam and Darjeeling still continuing unequal to their earlier shipments; Cachar and Sylhet have slightly improved, Dooars remaining about the same. The following official telegram was received to-day: "October outturn average, Assam; Cachar closing favourably; Sylhet and Dooars closing early."

Week's av. of Tea sold on Garden Account, 1898, 38,331 pkgs., av. 8·15d. 1897, 42,236 pkgs., av. 8·88d.

	1898. Pkgs.	1898. Price.	1897. Pkgs.	1897. Price.	1st June to date 1898. Pkgs.	1st June to date 1898. Price.	1st June to date 1897. Pkgs.	1st June to date 1897. Price.
Assam ...	17,668	9·64	23,977	9¾	241,288	9·94	230,424	10·55
Cachar & Sylhet...	10,381	6·18	9,761	7	93,922	6	121,449	6·99
Chittagong ...	—	—	221	8	873	6·36	3,323	7·14
Chota Nagpore ...	—	—	—	—	553	5·07	667	4·62
Darjeeling ...	3,213	96·2	2,420	1/-	46,602	10·95	38,776	11·35
Dooars ...	5,041	7·16	1,902	8¼	64,280	7·20	57,835	7·65
Kangra, &c. ...	120	7·86	447	7½	4,442	6·57	4,588	7·47
Neilgherry ...	416	6·53	561	7	2,385	6·51	3,553	6·84
Terai ...	383	7	979	7	8,566	6·35	13,269	7·27
Travancore ...	1,109	6·15	1,968	6¼	20,143	6·14	16,799	6·40

Total Tea sold on Garden Account 1st June to date 1898, 493,054 pkgs., av. 8·63d. 1897, 490,715 pkgs., av. 9·06d.

		1898.	1897.	1896.	1895.
DUST.	(Fair ordinary, dark liquor) ...	3¾d	3¾d	4½d	4¾d
FANNINGS.	(Red to brown, strong rough liquor) ...	4¼d	4¼d	4¾d	5d
BROKEN TEA.	(Brownish to blackish, strong liquor) ...	6¼d	6¼d	6½d	6¼d
PEK. SOUC.	(Blackish greyish, useful liquor).	6¼d	6½d	6½d	6¾d
PEKOE.	(Greyish to blackish, some tip, useful liquor) ...	7½d	7½d	7¾d	8d
PEK. SOUC.	(Blackish greyish, inferior liquor).	5d	5d	5d	5½d
PEKOE.	(Blackish greyish, some tip, inferior liquor) ...	5½d	5½d	6d	6d

Ceylon. The chief competition centred upon the lower grades of whole leaf Tea, all kinds up to about 7d. per lb. being bid for with considerable animation. Medium Teas were less easy of sale, and for finer grades from 9d. to 1/-, bidding was slow and a slight decline on last week's rates was noticeable. Any Teas with exceptional quality sold well. Average for week 8·51d. against 8·58d. same period 1897.

Ceylon Tea sold on Garden Account 1st Jan. to date 1898, 979,073 pkgs., av. 7·72d. 1897, 954,114 pkgs., av. 7·75d.

		1898.	1897.	1896.	1895.
PEKOE SOUC.	(Ordinary leaf; fair liquor) ...	6½d	6¾d	6¼d	7¼d
PEKOE.	(Ordinary leaf; little twist; fair liquor) ...	7¾d	7¾d	7¾d	8¼d
PEKOE SOUC.	(Rather bold leaf; indifferent liquor) ...	5¼d	5¼d	5d	5¾d
PEKOE.	(Somewhat bold leaf; indifferent liquor) ...	5¾d	6d	5¾d	6¼d

Java. The 1,544 pkgs. were all of direct import and mostly sold with good competition. Teas for price being firmer. 108 pkgs. "Goalpara" av. 9¾d., 108 pkgs. "Perbawattee" av. 9½d., 648 pkgs. "Djatti Nangor" av. 7½d.

PUBLIC SALES FOR SOUTH INDIAN TEA.

(AVERAGE FOR ALL INDIA 8·15d.) *November 11th.*

GARDEN.	Total. Quantity	Average. Price.	Broken Org. Pek. or Flowery Pekoe. Quantity	Broken Org. Pek. or Flowery Pekoe. Price.	Pekoe and Unassorted. Quantity	Pekoe and Unassorted. Price.	Broken Pekoe. Quantity	Broken Pekoe. Price.	Pekoe Souchong. Quantity	Pekoe Souchong. Price.	Broken and Souchong. Quantity	Broken and Souchong. Price.	Fannings, Dust, and Various. Quantity	Fannings, Dust, and Various. Price.
Neilgherry ...	**416 p**	**6·53**												
New Hope ...	173 p	6½	35½ c	8	42	5¾	34⅓ c	8½	62	5¼	...	...	...	...
Pykara Falls ...	93	6⅜	...	...	45	6¼	28	7¾ 8¾	20	5½	...	...	...	...
Seaforth ...	150½ p	6⅜	46½ c	8	61½ c	6½	...	...	43⅛ c	5¾	...	...	...	...
South Wynad ...														
Chulica ...	95 p	8⅓	37⅓ c	11⅓	29⅓ c	9	...	...	29	6½	...	...	...	...
Richmond ...	25	6	6	7¾	6	6	...	...	13	5¼	...	...	...	...
Travancore ...	**1109 p**	**6·15**												
Braemore ...	140 p	6	...	...	55	6	50	6½	...	...	17	5¼	18½ c	4¼ 6
Cheroot Mallay ...	42 p	5⅔	...	...	42 p	5¼ 5½	...	...	...	...	...	...	...	...
"	64	5¼	...	...	64	5¼	...	...	...	...	...	...	...	...
Elderslie ...	85	5¾	32	5¾	3	5¼	18	7	30	4¾ 5¼	...	...	2	2¼
Glenmore ...	100½ c	6¼	...	...	60½ c	5¾ 6	40½ c	6¾	...	...	...	...	...	...
Herefold ...	49	5½	49	5½	...	...	...	...	...	...	...	...	...	...
Invercauld ...	180 p	5⅓	...	...	90	5¼ 5½	52	6	30	5 5¼	...	...	8½ c	3½
Isfield T Co Isfield ..	65	6¼	...	...	20	6¼	21	7½	24	5½	...	...	...	...
Kinmylies ...	30½ c	5⅓	...	...	27½ c	5½	...	...	3½ c	5	...	...	...	...
Mahandragherry ...	40½ c	6	...	...	36½ c	6	...	...	4½ c	5¼	...	...	...	...
Merchiston ...	29½ c	5¾	29½ c	5¾	...	...	...	...	...	...	...	...	...	...
Sth Indian T C K K	63	6¼	44	6¼ 8¼	7	5¼	...	...	...	...	...	...	12	3⅗ 6½
Stagbrook ...	100	7	38	7½ 8½	43	6½	...	...	9	5½	10	6¼	...	...
Sth Trav Est Ven ...	122	7¼	1	7¾	43	7	43	8½	27	6	...	...	8	4⅝

CHINA.—Trade continued very unsatisfactory, only small quantities changing hands at auction (where 4,734 packages were offered) until near the close, when common Congous improved in demand. Scented Caper rather dearer. Green Teas irregular. The following are the particulars of the lots sold in auction:—

half-chests Black leaf Congou, common Moning 4⅛d.
ditto Red leaf Congou, common Kaisow 4⅛d, medium Panyong 5¼d.
half-chests Souchong 6¾d.
ditto Oblong 5d.
boxes Ditto 8½d to 9d.
boxes Canton Scented Caper, medium to good medium 5½d to 7⅜d.
half-chests and cases Moyune Green, Gunpowder, ordinary to fair 5⅛d to 5¾d, medium to good medium 6½d to 8d, fine 1s to 1s 3d; Imperial, common to medium 3¼d to 5½d; Young Hyson, medium to good medium 6½d to 8d, good Sow Mee 9d to 9¾d, fine to finest Sow Mee 1s to 1s 2½d; Hyson, common 4d, medium Foong Mee 7¾d to 8½d.

INDIAN.—Sales were about on a par with the previous week, comprising 50,000 packages, against 49,700 packages, and 56,700 packages in 1897. There was a fair enquiry for the better grades, but in some instances

Broken Pekoes showed considerable irregularity. Competition was, however, keen for common to medium kinds, both leafy and broken with useful cup, which consequently ruled firm. The supply of the former is being somewhat curtailed owing to larger shipments from Calcutta to Bombay and other ports including America, the total diverted from London since 1st April to the end of September being computed at 8 million lbs. *versus* 5 million lbs. in the foregoing year. As will be also seen by the figures given below there has been a further expansion in shipments from here to the Continent, America, &c., thus affording relief to our market.

For 34,600 packages on Estate Account 8½d was obtained, contrasted with 9d per lb. for 41,800 packages, and 8¾d per lb. for 32,700 packages respectively in the two preceding seasons.

Telegrams from Calcutta state that 5a 11p per lb. was realised there for the 24,000 packages sold on the 3rd inst., and that 30,000 packages were advertised for the 11th inst.

CEYLON.—There was a reduction in the quantity brought forward, the total being 17,900 packages opposed to 24,200 packages on the 1st inst. and 16,100 packages for the corresponding period of 1897.

A strong demand again prevailed for Pekoe Souchongs and Pekoes with ordinary to fair liquor, both for the Home Trade and for Export, prices being occasionally forced up ¼d per lb., while those with desirable style and flavour, as well as Orange Pekoes, attracted good bidding and often marked an advance of ½d per lb. Broken Pekoes with coloury infusions, below 10d per lb., were wanted, but above that figure there was less desire to purchase on the part of dealers and quotations were in some cases ½d to 1d per lb. lower.

The average is 8⅝d per lb., on the 3rd inst. it stood at 8½d per lb. and 8⅛d per lb., in 1897.

JAVA.—About 1,500 packages of direct import passed with spirit without material alteration.

Deliveries.

The clearances of all Tea (on which duty has been paid) from the London warehouses, as per official returns, were :—

From 1st to 8th Nov., 1898.....5,314,261 lb.
„ „ 1897.....4,931,912 „

During the week the following have been printed for sale by public auction :—

	Sold. Pkgs.	Withdrawn. Pkgs.	Total offered. Pkgs.
India	43,654	6,337	49,991
Ceylon	16,627	1,255	17,882
Java	1,414	130	1,544
Total	61,695	7,722	69,417

Also 264 packages from second hands.

CINCHONA BARK.

Only 931 packages were offered at yesterday's auctions, divided as follows :—122 bales 3 cases Ceylon (sold) : 32 bales East Indian (7 bales sold) ; 591 bales South American (500 bales sold) ; and 183 bales African (167 bales sold).

A good demand prevailed, and the bulk of this small supply sold at a further advance ; we now quote the unit at 1d.

At the auctions of 8th ultimo 1,053 bales were catalogued, but immediately prior to the commencement of the sales one catalogue containing 122 bales Ceylon Cinchona was withdrawn. Good competition prevailed, and the great proportion sold at a distinct advance (even dearer than last week's sale at Amsterdam), the unit value being now 1d, which compares with 1¾d ruling at this date last year, and ½d per lb. in 1896.

Of *South American* 591 bales offered and 500 bales sold—Bolivian cultivated Calisaya yellow quill 5d to 6¼d, soft Columbian (one lot) 2½d per lb.

125 bales, &c., *Ceylon Cinchona* all found buyers as follows : Succirubra, quill 3½d, chips 2¼d to 3½d, ditto renewed 2½d ; Hybrid, chips 4¼d per lb.

32 bales *East India Cinchona* offered and one-fourth sold at 3⅞d for Officinalis chips, and 3⅜d per lb. for shavings.

Of 183 bales *African Cinchona* offered 168 bales sold—Succirubra quill 2¾d to 5d per lb.

The dates of the sales for 1899 in London have been fixed as follows :—January 24th, February 28th, March 28th, April 25th, May 24th, June 20th, July 18th, August 15th, September 12th, October 10th, Nov. 14th, Dec. 19th.

SULPHATE OF QUININE is dearer, with sales of B & S or HB at 10½d per oz. Holders are firm.

OFFICIAL QUOTATIONS ON 11TH ULTIMO.

Sulphate of Quinine—	*in tins.*				*in 1 oz. vials.*			
Howards & Sons	1s 0d	to	0s 0d		1s 2d	@	0s 0d	
Thomas Whiffen	0s 0d	„	0s 0d		1s 0d	„	0s 0d	
Brunswick	0s 11d	„	0s 0d					

Sulphate of Quinine—	*in tins.*				*in 1 oz. vials*			
Mannheim	0s 0d	to	0s 0d					
Auerbach	0s 10d	„	0s 0d					
Zimmer Jobst	0s 11d	„	0s 0d					
Milan	0s 0d	„	0s 0d		0s 0d	@	0s	
Taillandier	0s 11d	„	0s 0d					
Amsterdam	0s 11d	„	0s 0d					
Pelletier's	0s 0d	„	0s 0d		1s 5d	„	0s	

AMSTERDAM, November 3, 4.55 P.M. :—At the auctions held here to-d total of 634,467 kilos. of Java cinchona-bark was offered, consisting 527,163 kilos. manufacturers' and 107,304 kilos. druggists' bark. weight of quinine sulphate in the bark was 27,941 kilos. and 2,502 k respectively. Practically all sold, at an average unit of 4.67 per half-k for the manufacturing bark, against 4 05c. paid at the September aucti The following were the purchases :—American and English factories, bought the equivalent of 5,524 kilos. ; the Auerbach factory, O kilos. ; Brunswick factory, 5,805 kilos. ; the Amsterdam and Mannheim wo 8,880 kilos. ; the Frankfort-on-Main and Stuttgart works, 5,674 kilos. ; various buyers, 3,227 kilos. The prices paid for the manufacturing b ranged from 6¾c. to 45c. per kilo., and from 8½c. to 99c. for druggis The tone throughout the auctions was firm.—*Chemist and Druggist.*

Our Amsterdam representative wires us that the result of the bark a tions in Amsterdam this week was an advance of ·62 cents in the unit, average unit working out at 4·67 Dutch cents per half-kilo (rather un 17-20d per lb.) against 4·05 at the last auctions. A very satisfact feature again was the small amount bought in. The lowest price *Manufacturer's* bark was 6¾ cents and the highest 45 cents, and lowest for *Druggists'* was 8½ cents and the highest 99 cents. The ton the market was firm. Out of 7,181 packages offered, 6,724 sold.—*B. C. Chemist*, Nov. 4.

IN AUSTRALIA.

TEA.

MELBOURNE, *Nov.* 9.—*India.*—Shipments from Calcutta are 3,500, lb., as against 3,822,102 lb. same time last year.

Public sales were held on the 13th October, when 2,528 packages w sold at 6¼d to 6½d for leaf to clean pekoe souchongs; 6¾d to 7½d for fair to g quality ; 6½d to 7d for even leaf pekoes ; 7½d to 9½d for good liquors ; and to 1s for a few useful orange pekoes. Competition was good throughout sale, and prices steady to strong. On the 28th October 940 packages offe 280 of which sold at 6½d to 6¾d for good leaf pekoe souchongs, and 6¾d to 7½d for useful pekoes. Importers were not prepared to make any c cession upon top rates, and so withdrew the bulk of the offerings. vate sales have been larger than usual, but were mostly confined Souchongs and Pekoe Souchongs at 5¾d to 7d. Catalogues covering 2, packages are printed for this and next week's sales.

Stocks in bond on the 29th October were 332, 444 lb.

Ceylon.—Shipments from Colombo are 8,000,000 lbs., as against 6,702,0 lbs. at same time last year. Public sales have again been light. On the 1 October, 750 packages were offered, and 575 sold at 5¼d to 5½d for f fannings ; 5¼d to 5½d for rough leaf ; 5¾d to 6½d for even leaf pe souchongs ; 6¼d to 6¾d for even leaf pekoes ; 7½d to 9½d for good qual pekoes ; and 10½d to 1s 1½d for fine quality. On the 11th October, packages were sold at 6d for common souchong ; 6½d to 6¾d for fair pe souchong ; 8d to 9d for good pekoes ; and 10¼d to 10½d for finer quali Arrivals have been in increased quantity, which buyers readily took at f prices. There is a strong demand for all grades (except dust) up to 6½ and a steady demand for all better kinds up to 1s. Stocks in bond on 2 October were 230,747 lbs.—*From Messrs. Alfred Harvey & Co's Report.*

PEPPER.

Black.—The market is dearer, with sales of 200 tons Singapore at high prices—at 4½d for fair quality on the spot at 4⅛ Oct.-Dec. shipment, 4⅜d Nov.-Jan., and at 4 3/16d Jan.-March.

Black Pepper closed dearer. Sales of Singapore at 4 3/16d to 4⅜d. 50 t October-December sold at 4⅜d and buyers. White.—No sales.

GINGER.

Cochin.—No further development has occurred in this article, holders are firm at 27s per cwt. for good washed rough.

CARDAMOMS.

205 cases offered and about 80 cases sold as follows :—Mysore @ Ceylo good bold pale plump bleached 3s 6d to 3s 7d, medium ditto 3s 3d 3s 4d, leanish medium ditto 2s 9d, fine small 2s 8d, small 2s 6d, very sm 2s 3d ; dull pale bold 3s to 3s 2d, medium ditto 2s 7d to 2s 8d, bold medi brownish 2s 7d to 2s 8d, inferior ditto 2s 2d to 2s 4d ; Malabar @ Ceyl good pale bold 2s 11d, very brown 1s 11d ; long Native, or wild, Ceyl rather lean 3s 2d. Seeds 3s per lb.

PLANTING OPINION.

A WEEKLY JOURNAL

WRITTEN BY PLANTERS FOR PLANTERS.

VOL. III.] **MADRAS, SATURDAY, DECEMBER 10, 1898.** [No. 49.

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SUBSCRIPTION.—Advance Rates: Yearly, Fifteen Rupees; Half-yearly, Eight Rupees; Quarterly, Five Rupees, and Monthly, Two Rupees, including postage. Single Copies, Eight Annas.

ADVERTISEMENTS.—The charge for line advertisements is 4 as. per line for the first, 3 as. for the second, and 2 as. for the third and succeeding insertions. Five-line (or shorter) advertisements from Subscribers will be inserted for three issues for one rupee; non-Subscribers will be charged two rupees.

DOMESTIC OCCURRENCE.—The fee for inserting a domestic occurrence will be *One Rupee* for each insertion, payable in advance.

N. B.—Remittances should be sent to E. C. Duft & Co., Proprietors, "Planting Opinion," 16/17, Armenian Street, Madras.

SEASON REPORTS.

TO OUR SEASON REPORTERS.

Please post your next reports to reach Madras on Friday, the 16th December, 1898.

Season Reports should be sent to the Printers, Messrs. Addison & Co., direct, and not to *Planting Opinion* Office.

Coorg.

Polli Betta, *7th Dec.*—*Weather.*—Dull all last week with rain on 26th, 27th and 30th ultimo; amounts not large. Largest on 26th, ·20 inch. Clear, chill, and windy this week. *Crops.*—Picking begun this side now. A good deal of crop has been got in on the western side of the country. It is reported that crops are very fine in the Sunta Koppa District of North Coorg. *General Health.*—Very fair. *Labour.*—Generally sufficient. *Interesting Item.*—Mr. Cameron's lecture at the Club was attended by nearly 40 planters.

GAS TREATMENT FOR SCALE INSECTS.

It will have been observed that one of the Entomologists consulted with reference to the importation of Ladybirds for the extermination of scale pests on Coffee expressed a decided opinion that the treatment of such pests by *gas* is the most effective. For our own part, we think the process unsuitable for use on coffee-estates, but it is certainly one that deserves more than passing notice. Poisonous gases or vapours have been used in greenhouses for years past; but it is scarcely more than a decade since their use was shown to be practicable on an economical scale in orchards as well as in greenhouses. The report of the Board of State Horticultural Commissioners of California, 1882, mentions certain unsuccessful experiments with steam. Later, Mr. Alexander Craw, the Entomologist of the State Board of Agriculture, and Mr. J. W. Wolfskill carried on various experiments with different gases. Mr. D. W. Coquillet, a special agent of the Division of Entomology of the United States Department of Agriculture, joined them, and to the last named is due the discovery of the value of hydrocyanic acid gas for the destruction of scale insects on tent-covered trees. This

was in 1886, and since then the use of liquid insecticides has been largely superseded in California by the fumigation process. It may be that the early future will witness a further evolution of the process in its application to coffee-estates, but the conditions of orchards in California and coffee-plantations in Southern India would seem to be at least as widely different as those of the former and greenhouses are. If this be so, there is a wide gulf to be bridged before proof can be given that what can be done with citrus trees in California can also be economically done with coffee trees in India.

The process under reference is doubtless familiar to most of our readers. Dome-shaped tents made of duck are used, with double crowns. Those used in California are of four sizes:—I., 6 breadths of 27 inches, 2¼ yards in length; II. 9 breadths, 3 yards in length; III. 11 breadths, 4 yards; and IV. 13 breadths, 5½ yards. A circle of gas-pipe is used to keep the mouth of each tent expanded; this circle is in halves, the ends are joined by short pieces of larger pipes into which they slip and are held in place by loosely fitting bolts passing through holes drilled through both the ends of the circle and the short connecting piece. The cloth of which the tent is made is well brushed with a mixture of four parts of boiled linseed oil to one part of turpentine. The gas itself is generated by the action of sulphuric acid on potassium cyanide in the presence of water. Those who know the cost of sulphuric acid in this country will be able to judge for themselves of the probability of their being able to generate the gas at a fair cost. The cover must be left over the tree for thirty minutes in the case of small trees and forty-five in the case of those over twelve feet in height. A number are fumigated together, however, the endeavour being to treat as many at a time as can be covered and uncovered during the period of exposure. A record number of trees fumigated during one night appears to be 190. The gas is most efficacious at night, and less damage is then done to the foliage. So that the time during which operations can be conducted is limited. As regards cost, we have some figures before us relating to experiments made in Cape Colony. The initial cost of tents and labour apart, the cyanide was estimated to cost 1*s.* 4*d.* per pound, and the acid 3*d.* The fumigation of a tree 10 feet in height and 8 feet in diameter was put at less than 2½*d.*

That the process is cheaper and more effective than spraying, would seem to be beyond question. In a report to the Horticultural Board by the Government Entomologist, Cape of Good Hope (1897), we find it stated that, in general, fumigation with hydrocyanic acid is the cheapest remedy for scale insects of citrus trees in Cape Colony, and the belief was expressed that such fumigation might be economically employed on nearly all farms in that colony where citrus trees are grown. As regards the efficacy of the gas, it was stated:—"Applied sufficiently strong and under a tight tent, every living scale insect appears to be destroyed. These perfect results are not always obtained in practice, despite of care in keeping the outfit in good order, but living scales have been found on few of the trees fumigated a few weeks after the treatment." Scale insect eggs are destroyed as well as scale insects, if the gas be strong enough. But a difficulty naturally arises in the case of such a pest as Red Scale *(Aspidiotus aurantii)* which infests not only citrus trees but also other orchard trees and many garden plants. So, too, in applying the process on coffee-estates, it would only be perfectly effe tive when applied to every species of trees infested by t special pest to be destroyed. This is a point that shou be carefully noted. More important still is the fact th hydrocyanic (prussic) acid gas is deadly poisonous to ma Potassium cyanide is as poisonous as the gas. Sulphu acid "burns" almost everything with which it is brought contact. The process is not, therefore, one that can safely left to the care of an ordinary batch of coolies their maistries. This is not the least of the reasons th influence our opinion that the process is not adapted to t circumstances of coffee-planting in this country.

BOOKS.

MR. T. FISHER UNWIN, the publisher, is sending a repr sentative out to India this season. He has forwarded us, advance, very comprehensive catalogues of his publicatio many of which deserve special notice. "The Story of t Nation" series is numbered among modern classics. It an ever-growing series of brief accounts of dismembe Empires and Kingdoms, of nations with a future as well a past, and of those great Colonies which have at prese no nationality separate from the mother-country. Admirab printed, and written by experts, these books are in effe condensed histories, full of instruction, and invaluable reference. There is now "The Children's Study" also, which different writers go over somewhat similar grou and adapt their stories to the requirements of the you "Unwin's Colonial Library" is already sufficiently well kno to need no special "bush." An excellent idea of M Unwin's is the issue of a shilling book, "Good Readi about Many Books, selected by their Authors." This co prises choice extracts from well-known novels, biographi histories, &c., with many portraits of authors. There i hint of *ex pede Herculem* about the booklet. From the f pages given you judge of the bulk, and then order a bo or books likely to suit your taste. It is a capital plan.

BOARD OF TRADE RETURNS.

October, 1898.

STATISTICS of Imports into the United Kingdom up to t end of October last include the following:—

Cocoa (raw) arrived most plentifully, and, the clearanc having diminished, the bonded stock came nearer to th of a twelvemonth since.

In the first ten months.	1898.	1897.	1896.
Imports ... ... lbs.	37,705,634	31,131,897	32,775,6
Home consumption ... „	25,956,288	23,660,572	20,891,0
Exports ... ... „	8,802,404	12,178,019	10,159,3
Stocks in bond ... ... „	18,887,000	19,255,000	25,610,0
Value of imports	£1,167,286	£829,826	£905,2
„ exports	282,800	329,084	268,3

Cocoa (prepared).—Here there was a falling off in t quantity received, but it had little effect in reducing t huge stock.

In the first ten months.	1898.	1897.	1896.
Imports ... ... lbs.	6,771,938	7,177,087	2,887,960
Home consumption ... „	5,365,071	6,470,022	2,455,020
Exports ... ... „	571,299	434,088	379,544
Stocks in bond ... ... „	1,234,000	356,000	105,000
Value of imports	£567,367	£477,152	£278,969
„ exports	62,135	48,000	43,515

Coffee.—The supply shrank to very modest dimensions, and with average deliveries, the stock in bond underwent some diminution.

In the first ten months.	1898.	1897.	1896.
Imports ... ... cwts.	870,920	681,076	631,658
Home consumption ... „	212,422	208,167	207,880
Exports ... ... „	467,758	394,408	397,268
Stocks in bond ... ... „	400,000	225,000	161,000
Value of imports	£3,558,492	£3,222,115	£3,141,831
„ exports	1,809,396	1,701,400	1,803,373

Chicory.—Home deliveries, as well as the imports, were heavier than in 1897, and the stock was practically double that in the two preceding years.

In the first ten months.	1898.	1897.	1896.
Imports ... ... cwts.	81,284	83,570	89,449
Home consumption ... „	65,962	68,862	70,485
Exports ... ... „	415	1,339	10,048
Stocks in bond ... ... „	30,000	16,000	16,000
Value of imports	£35,241	£37,117	£41,802
„ exports	419	1,361	9,381

Tea.—Both the duty-paid entries and the exports were much heavier than those in the former year; but, as the landings were considerably larger, they produced a surplus of 1,861,000 lbs. in the general stock.

In the first ten months.	1898.	1897.	1896.
Imports—China ... lbs.	22,327,378	21,967,258	29,049,172
„ British East India „	98,966,736	96,113,449	92,302,163
„ Ceylon ... „	84,226,406	83,797,306	80,961,817
„ Other countries. „	6,536,260	5,612,602	6,833,567
Total imports ... „	212,056,780	207,490,615	209,146,179
Home consumption—China lbs.	12,441,974	14,690,846	16,672,758
„ „ B.E.I... „	108,506,219	102,567,353	99,732,168
„ „ Ceylon. „	69,686,621	72,403,459	67,330,840
„ „ O.C. ... „	4,065,484	3,433,643	4,225,432
Total ... ... „	194,700,298	193,095,301	187,961,198
Exports—China ... lbs.	13,303,083	16,720,983	15,745,355
„ British East India „	5,984,855	4,235,750	2,901,956
„ Ceylon ... „	9,965,965	8,574,360	6,683,766
„ Other countries. „	1,040,686	847,085	907,372
Total ... ... „	30,294,589	30,378,178	26,238,449
Stocks in bond ... ... lbs.	87,691,000	85,830,000	94,167,894
Value of imports	£8,076,583	£8,070,056	£8,344,446
Of which British Indian ...	3,859,219	3,873,195	3,777,129
„ Ceylon	3,195,798	3,232,149	3,238,007
Value of exports	1,252,825	1,247,696	1,126,632

The remarkable increase in the consumption of coffee is the chief feature of these statistics, and will doubtless be taken as a high tribute to "bold advertisement." At the same time, the steady growth of home consumption and exports of coffee, the decrease in consumption of Chicory and China Tea, and the increased offtake of Indian and Ceylon teas—especially of the former—are all points of special interest to our readers. As regards stocks in bond, Cocoa (raw) and tea are in a very healthy position, while Coffee is far too plentiful. Noting the growth of demand for this article as compared with that of consumption of Tea, and more especially with the immense increase in consumption of Cocoa, it can scarcely be doubted that coffee is suffering from the want of special advertising and *push*.

In this connection, we would call special attention to the proceedings of the Shevaroy Planters' Association that are given on another page.

NOTES.

Advertising up to date—"Cribbed."

We would like to C-U-B-A customer of ours if you H-A-V-A-N-A money to spend.

Cacao.

A Matale East correspondent observes that while hitherto 1,700 pods of cacao gave one cwt. of dry nibs, this year it has taken 2,000 pods. He attributes this to the recent drought.

Brazilian Coffee.

No wonder Brazilian Coffee can be sold at lower prices than Indian, the question of quality apart! One cargo of Coffee from Santos and Rio to Hamburg recently comprised 88,000 bags. That is the sort of thing that helps to cheapen freights.

The China Tea Season, 1898-99.

As there was to be no direct steamer for the colonies after the *Australian*, which sailed from Foochow on the 11th ultimo, the China tea season virtually closed then, so far as the colonies are concerned. The total exports to date amounted to 5,750,000 lb., and was expected that 6,000,000 would cover the total for the season.

The Protection of Game in Ceylon.

A recent letter from the Colonial Secretary, Ceylon, to the local Game Protection Society stated that:—(1*st*) It had been decided to strictly prohibit the shooting of elk and deer in the hill districts (where running to the knife could be indulged in) except with the special leave of H. E. the Governor; and (2*nd*) that the restrictions placed on the export of hides and horns do not apply to trophies.

Coffee as an Auxiliary to Tea.

From information to hand—says the *Indian Planters' Gazette*—it would appear that a few gardens in Sylhet and Upper Assam are seriously contemplating putting out from 50 to 100 acres of coffee. Failures there will be, no doubt, but careful selection of land, good seed, good pits, careful planting and intelligent cultivation afterwards, ought in a great measure to reduce the failures to a minimum.

A new Arrival and a new Departure. Commenting on the fact that Mr. T. C. Anderson has left Ceylon for his tea property in the Nilgiris, the *Ceylon Observer* remarks that the new system of culture and plucking he put in force has already done wonders: crop coming in at double and treble the old rate. Presumably, this new arrival will at once set to work on the Nilgiris to give a practical demonstration of his new departure in culture, &c ?

Diogenes as Postmaster-General of Ceylon. We trust planters in Southern India are not in such bad case as their brethren in Ceylon. A recent official list of undelivered messages contains the name of "Honest on (e)": and the Postmaster-General ends the line by saying "left Ceylon." Let us hope that the addressee is among the emigrants from Ceylon to Travancore and the Nilgiris. We have Diogenes' authority for stating that he would be a "catch."

Record Prices. Commenting on a recent sale of tea in Colombo at 11 cents, for a break of 2,550 lb. red leaf, "Incinerator" dryly remarks :— It is evident that we have too long adopted a wrong system of plucking, rejecting as too coarse all "banjy" leaf. Instead of seeing estate roads untidily strewn with such leaf scrupulously picked out from the pluckers' baskets, we may now hope to see all this carefully manufactured, and the total production of Ceylon teas at least doubled.

Birds and Plants. Dr. Johow states that birds do not play so important a part in pollenating flowers as has been generally supposed. Humming-birds in particular feed on insects, not nectar, and do not carry much pollen. There is in Chili, however, a bromchad (*Paya chilensis*) which has a nectar so watery that insects do not care for it, while humming-birds and the Chilian sterling (*Curacus atterrimus*) drink it greedily. In doing so they dust their heads with pollen, and some of this is subsequently shed on other flowers.

Sunflower. The *Oil, Paint and Drug Reporter* says :—The percentage of oil in the Russian sunflower ranges from 16 to 28 per cent. On the average about 18 per cent. of oil can be extracted by expression cold after crushing the seed. This is the highest quality of oil, and any additional amount that might be extracted by steaming would be lower grade. It is estimated that 50 bushels of seed may be harvested to the acre, and roughly the yield would be about a gallon of oil to a bushel of seed. These are foreign figures, where the crop is grown for the oil.

The London Tea Market. Telegraphing to the Colombo papers on 1st instant, Messrs. Gow, Wilson and Stanton reported that the market generally was unchanged; teas with quality weak; poor liquoring sorts steady. Fair Pekoe Souchong was quoted 6½*d.*, and the average for the week 8¼*d.*, as in the previous week. Reuter wired that fine qualities were irregular and others firm; 15,000 packages sold out of 16,000 offered. Average 8¼*d.* (⅛*d.* down). The average of Indian was down ¼*d.*, standing at 8¼*d.*, and only 41,0 packages were sold out of 50,000 offered.

Colombo Tea Sales. At the sale of Tea at Colombo 30th ultimo about 7,975 pkgs. 588,486 lb. were offered, of which about 5,714 pkgs. 418,652 lb. were sold. Owing no doubt to the falling in quality of many of the teas offering, the sale passed wi a weaker tone for nearly all grades, though there was st a strong demand for all leaf kinds. Among the finest te offering were: Agra Ouvah, Glasgow, Ben Nevis, Hig Forest, Middleton, Tynmiwr and Stamford Hill. Amon low grown teas good invoices were offered from Talgaswell Chesterford, Arapolakande, Rayigam and Kelani.

Tea Estimates. At a meeting of the Dimbu Planters' Association the other d the Chairman remarked on the importance of obtaining accurate estimate. The estimate for the island last ye was put up about 15 million lb., and was reduced at t hands of the Parent Association by 7 million lb. Upon th reduction the price of tea in the London market had go up immediately. It would be a good thing, therefore, avoid sending in fancy estimates. We judge that the hi was not uncalled for, inasmuch as one member, the pr prietor of 230 acres, had estimated his crop at 240,000 lb

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"Signed Correspondence." Various correspondents ha remarked that many, if not mo planters *will not* write to the Press except under pseud nyms, and our brief experience with the "Signed Corr spondence" section points to much the same conclusion. W regret this, and think it a very great pity; nor shall yet abandon the hope that some few will "form a ne school" and have the courage of their convictions. One thi is certain, viz., that the value of statements or criticisms c be better judged when the name of the writer is kno than when it is hidden under the mask of a *nom de plume*.

Neglected Opportunities. The story comes from London :- He was bemoaning the bad tim and the impossibility of selling his estates. "I've spe any amount in advertisements in the *Field* and other su papers, and, although I get a lot of nibbles, I never g any further." "Ceylon is a disappointing country," continued, "one is always going to do well out of it, b something always is in the way." I reminded him that n more than three years back he could have got out on exc lent terms, and asked him why he had not then realise "My partner wouldn't; he thought we should do bett later on," was the reply. 'Twas ever thus.

Tea Planting in Udugama (Ceylon). The Udugama District is 24 mil N. E. of Galle, and about 30 mil inland. A correspondent writes the *Ceylon Observer* :—I learn that there is only one t estate in the district giving over 500 lb. of tea per ac Two of the estates of about 250—300 acres in extent a worked exclusively by Sinhalese labour, the village settling in the lines on the tea estates. The planters appr ciate Sinhalese labour, being cheap without Coast advanc and attend to the wants of the labourers carefully. T

ruling wages here also are 33 cts. for adults and 25 cts. for women and 1½ cts. per lb. for picking.

Mr. Buckingham's "Green Tea."

Reporting on Mr. Buckingham's recent sample of "green tea," Messrs. J. Thomas & Co., of Calcutta, value it at 5 annas, and describe it as "Mixed Oolong kind, few ends, pale, rather new." The valuation is purely nominal, "as a sample of India green tea is practically never seen here." Messrs. Baines & Co. value the tea at 6 annas, describe it as "irregular, fairly well twisted, mixed leaf, Oolong kind, fair tip, thin, little pungent," and remark:—"This tea is scarcely a 'Green' tea, but is more of the 'Oolong' description. Oolongs of the kind made in Formosa are appreciated in America, and if tea similar in flavour could be made in India, we have no doubt it would meet with a good reception. This tea, however, does not possess much flavour."

Calcutta Tea Sales.

Reduced quality and prices marked the sale on 25th ultimo. There was a large proportion of poor liquoring Teas from Cachar and Sylhet, and less demand for all grades, excepting a few fine lots. Prices declined a quarter to a half anna on all teas worth over six annas; and two to three pies on all teas under that value. Owing to the recent heavy shipments to the Bombay market, there was less support than usual from this source. Almost sixteen thousand packages were sold on the 2nd inst. Competition was fairly brisk throughout the sale, but prices were somewhat irregular, with a slight easier tendency, partly due, no doubt, to the state of the London market, where there is reported to be generally a poor demand for common medium, and a dull demand for Bombay, while other markets outside London have improved.

The Dietetic Value of Tea.

An American scientific paper states that one pound of good tea contains about a third of an ounce of theine, two and-a-half ounces of caseine, one-twelfth ounce of volatile oil, two and-a-half ounces of gum, half an ounce of sugar, half an ounce of fat, four ounces of tannic acid. Mineral matter or ash, water, and woody fibre make up the remainder. Caseine, of which there is so large a quantity, it will be remembered, is the nutritive principle of milk; vegetable caseine, or legumen, is analogous in principle. Tea is, therefore, a highly nutritious substance, and fully capable of forming flesh and sustaining life. Peas and beans are highly concentrated forms of food, and yet analysis shows that the better qualities of tea are as rich in the nitrogenous element or nutrient principle as are these seeds. Caseine is identical in composition with the muscular fibre and with the albumen of the blood, and is easy of assimilation.

COFFEE SHADE TREE.

Sun-dried Erythrina Lithosperma loppings, &c., contain per ton:—

61·50 lbs. Nitrogen.
57·38 „ Potash.
14·92 „ Lime.
13·68 „ Phosphoric Acid.

Seed cured under Messrs. Sutton and Sons' advice.

Orders should be booked early for the 1898-1899 crop of seed from the parent trees of above analysis at Rs.6 per pound containing about 2,000 seeds. *Germination guaranteed.*

Only thornless variety extant, and is not procurable anywhere save from the

MANAGER, ARIENKOW ESTATE,
Shencottah.

Ceylon Tea Exports.

Shipments of Tea from Ceylon to the U. K. in November totalled 6½ million lbs., and the estimate for December is 7¾ to 8¼ million lbs. The *Times of Ceylon* gives the following figures for 1898, which come fairly near the revised estimate of the Planters' Association, viz., 118,921,400 lbs.:—

January	10,111,251
February	8,210,418
March	11,131,202
April	8,647,155
May	12,840,550
June	12,160,995
July	12,152,764
August	8,608,170
September	8,885,712
October	8,513,733
*November	8,500,000
*December	10,000,000
	119,761,950

* Estimated: 8,000,000 lbs. has been taken for the December shipments to the United Kingdom.

Coffee Supplies for the United States.

Leslie's Weekly says that two-thirds of the world's supply of coffee comes from Brazil, and nearly half of the whole supply goes to the United States, where twelve pounds per head of population is consumed annually. The Brazilian export duty of 11 per cent. has always been considered prohibitive, but with superior coffee being produced in the Antilles and the Philippines, it is estimated that American enterprise within three years will entirely supply the United States from those sources to the detriment of Brazil. Another paper (in New Orleans) says:—"We are a nation of coffee drinkers, according to the treasury bureau of statistics which has just issued a report showing that our imports of coffee for the present fiscal year reach 870,514,215 pounds, and that the annual coffee bill for the country for the past ten years has averaged $87,500,000. We have usually purchased the bulk of our coffee in Brazil, paying chiefly cash instead of goods of our own production, and attention is now called to the fact that in the acquisition of Cuba, Porto Rico and Manilla we have secured sufficient coffee growing territory to supply our own wants in this direction." The only defect here is that there are a few missing words such, for example, as the following, to be put at the end:—"just as we shall supply our own wants as regards Tea from the estates now being worked near Charleston."

Pruning and Labour.

Mr. J. W. Gosset, a Ceylon tea-planter, writes an interesting letter to the Colombo papers on the effect of pruning upon labour in tea-estates. He remarks that the system of pruning most generally adopted is to prune large acreages in January-March and July-September, and on some estates in January-February and July-August; and that under this system it is always a case of a feast or a famine of leaf. In the famine months caused by such a system, coolies are

worked from five down to two days a week. What Mr. Gosset would call a reasonable system of pruning is to prune all the year round wherever possible; of course there are many estates that suffer from wind, drought or excess of rain during some months of the year, where it would not be possible to prune every month of the year, but on most estates it is possible; and he is convinced that it is the only system by which coolies can get practically full work all the year round. The big rushes of crop now experienced would be almost entirely avoided, and there would always be a considerable acreage ready to respond to any kind of weather. Coolies would thus get the full work that they are entitled to by law and common honesty. With full work, all questions connected with labour would improve: such as coast advances, indebtedness of kanganies and coolies to chetties and kaddie people; and, indirectly, managers of estates and coolies would be in a better position to withstand the ever-present combination of chetties up-country, and elsewhere, against them. Certainly the suggestion is worth noting, and reveals a fresh point in favour of careful pruning.

LETTERS TO THE EDITOR.

NOTICE TO CORRESPONDENTS.

HUNTER.—Declined with thanks.—ED., *P. O.*

NILGIRI POTATOES.

SIR,—Will you or any of your numerous readers let me know in what months the Potatoes are planted, and in what months they are dug out on the Nilgiris, and from where I can get good seed Potatoe to sow. AMATEUR GARDENER.

KOLINGI.

SIR,—In your issue of 26th ult. you ask whether any of your readers could help with information as to where the seeds of the Kolingi (*tephrosia purpurea*) are to be procured. A few months ago I obtained small quantities from the plains, and they thrive up here at two thousand five hundred feet. If your correspondent desires it, I will try and get some villagers to collect the seeds.

OLIVERS, NAGERCOIL, TRAVANCORE,
2nd December, 1898. } WM. H. COX.

"WANTED TO KNOW."

SIR,—Looking through the *Nilgiri News* of the 29th November, I came across a para. from the "Kulla Kumbay" correspondent to that paper with the following startling announcement:

> "100 *boxes* of cherry only give 35 Bushels of Parchment and 15 "Bushels of Tails and Light."

This equals 50 bushels after pulping. May I ask where the other 50 *boxes* of cherry have gone to?! Surely that Pulper must be leaking?! I annex my last pulping and washing:—

39 *boxes* of cherry gave—
33 bushels of Parchment (wet).
3 „ „ Tails „
3 „ „ Light „
—
39

It seems to me this is how all "cherry" should turn out, not in the same proportion, but must be accounted for in some way, either by an increase of tails or light, but to get only 50% as stated in the *N.N.*!!! There must be something wrong.

"KARTARY."

GENERAL ARTICLES.

TEA COMPANY.

Sunnygama Tea Company.—The Sunnygama (Ceylon) Tea Est Company, Limited, has declared an interim dividend of three cent.

DAILY TELEGRAPHIC REPORTS.

LONDON.	*Dec.*	2.	3.	5.	6.	7.	8.
Bar Silver ...		27 7/16	27 1/2	27 5/8	27 5/8	27 9/16	27
Bank Rate ...		4%	4%	4%	4%	4%	4%
Coffee—							
Nilgiri, ave. (B) size.		64	64	...	64	...	64
Mysore „ (B) „		75	75	...	75	...	75
Wynaad „ (B) „		63	...	...	...	...	...
Middling Ceylon		103	103	...	103	...	103
Stock, tons.		...	...	...	16,342	...	...
Fortnight's ldgs. „		...	...	...	500	...	...
„ del. „		...	...	...	1,600	...	...
Cinchona Bark.		firm	...	...	...	...	...
Price per unit.		1d.	...	...	...	...	...
Stock, packages.		20,000	...	...	...	...	...
NEW YORK.							
Coffee—Fair Rio ...		6	6	6	6	6	6
Futures, Mch.		5.44	5.45	5.46	5.44	5.41	5.51
Silver—Comml. Bars		59 1/2	59 3/4	59 3/4	59 3/4	59 3/4	59 3/4

PROPOSED NEW DUTIES IN NEW SOUTH WALES

THE *Sydney Mail* of Nov. 12th says:—Of course it remains to seen whether the House will consider the increased expenditur necessary as the Premier considers it, and whether members will be disposed to think that the elasticity of the revenue for the four months justifies a more hopeful outlook. Meantime, this ta makes it clear how Mr. Reid proposes to raise the additio revenue:—

THE NEW DUTIES.

Tea, per lb.	3*d*
Coffee, roasted, ground, or mixed with any other article, per lb.	6*d*
Coffee, raw, per lb.	3*d*
Chicory, dandelion, or taraxacum, raw or kiln-dried, per lb.	3*d*
Chicory, dandelion, or taraxacum, roasted, ground, or mixed with any other article, per lb.	6*d*
Chocolate, plain, or mixed with any other article, and chocolate creams, per lb.	4*d*
Cocoa, prepared paste, or mixed with any other article, per lb.	4*d*
Cocoa, raw, per lb.	2*d*
Rice, per ton	60*s*

ABOUT TEAPOTS.

THERE are, says the *Grocer*, two matters which have speci engaged the attention of ingenious inventors, viz., pipes and teap In regard to the former articles the struggle has been to make a that shall, so to speak, consume its own nicotine, and not allow to enter a smoker's mouth. With reference to tea the object ai at has been to invent a pot for the elimination of tannin from actual cup which cheers; that is, a pot which will give tea in best possible condition and free from any principle likely to

R. VENKIAH BROS.,
PHOTOGRAPHIC ARTISTS, 161, MOUNT ROAD, MADRA
SPLENDID OFFER TO THE PUBLIC.
RX. Send us your Photograph, and we will reproduce a beau enlargement, framing size 18×14, highly finished in monochrome wit injury to original, framed complete, Rs.15.
NOTHING EQUAL TO THESE IN THE CARNATI
[2-10-98—t.f.o.]

injurious to consumers. The net result of these inventive ambitions, so far as they may now be observed, scarcely represents a brilliant triumph. People, generally speaking, continue to smoke the same sort of pipe they have always smoked, and they let the nicotine take its chance. Similarly as to teapots: they go on drinking tea in the usual style out of a pot that contains no grand patent improvement, and they refuse to be terrified by alarmist cries about tannin. Yet it is a fact that, during the last ten years or so, several ingenious and useful appliances have been placed on the market for the specific purpose of protecting the coats of the tea-drinker's stomach, and enabling him to enjoy his favourite beverage, perchance enthusiastically, without fear of his system being deranged. Curiously, however, tea-drinkers have not taken up these new articles with conspicuous liberality. In some instances the price has been against them; in others, they have been too complicated and if broken, have not been easily replaced. Now, in regard to tea, its two notable advantages for ordinary consumers are that it is cheap and easily prepared. It is refreshing, soothing, and it does not cost much money. Benevolent grocers fight against each other to keep prices down. *Mater familias*, who drinks tea probably three or four times a day, scoffs at the tannin bogey. She does not like a complicated or very expensive teapot. What was good enough for her grandmother—who paid more for her tea, if she did not get it better or drink more of it—is good enough for her, and she laughs at those eminent medical gentlemen who have been lifting up their voice lately in regard to this matter, and have told us all they know (not very much) about teapots. Consumers go on their way, heedless, rejoicing. The story is told how Lord Rosebery tried a new teapot, and wrote to the inventor that he would "make experience" with it, and give it a fair show. A short time after, the inventor asked his lordship what he thought of it, when the latter replied, somewhat enigmatically, that "he thought no more of the tea than before, and less of the pot," and that if anyone were enabled to drink vast quantities with impunity, the advantage to the human species might not be appreciable. After all, what comes out of the teapot depends upon what is put in.

THE COST OF TEA.

AMONG the most interesting figures we have seen lately in reference to Tea cultivation are the following, taken from the first annual report, 1897-98, of the Ceylon and Indian Planters' Association, Limited:—

ANALYSIS OF THE YEAR'S WORKING.

	Acreage in bearing and partial.	Acreage planted net in bearing.	Total Acreage.	Cost per lb. cts. Manure included.	Average London sale price per lb.	Average rate of Exchange.
Laxapana ...	688	128	1,021	29.64 Colombo.	7.23	1/3 31-32
Maha Eliya...	263	1	305	4¾ p. lb. 31.91 Colombo	8.18	1/4 1-32
St. Andrew's.	469	181	760	5 p. lb. 29.65 Colombo	7.57	1/3 27-32
Kandaloya ...	530	106	1,006	4¾ p. lb. 33.33 Colombo	7.42	1/4 1-32
				5¼ p. lb.		
	1,950	366	3,092			

	Profit per Acre in bearing.	Yield per Acre made Tea.	Crop made lb.	Original Estimate 1897 and 1898 lb.	Estimate 1898 and 1899.	Estimate cost Colombo per lb.
	£ s. d.					cent.
Laxapana ...	2 10 3	373lb.	265.087	285.000	280.000	27.00
Maha Eliya...	3 11 8	450lb.	118.196	130.000	130.000	28.89
St. Andrew's.	1 17 7	249lb.	116.506	150.000	180.000	27.35
Kandaloya ...	0 10 5	10 mths. 253lb.	134.352	190.000	170.000	29.00
			625.141	755.000	760.000	

ANALYSIS OF COST F.O.B. COLOMBO.

	Laxapana.	Maha Eliya.	Kandaloya.	St. Andrew's.
Superintendent and Assistants ...	3.36	2.96	4.32	3.66
House coolies	.34	.32	.40	.28
Bungalows	.08	.09	.03	.06
Lines	.58	.72	.26	.12
Factories, &c.	.30	.20	.25	.61
Machinery	.09	.35	.19	.36
Cattle Sheds	—	—	—	.02
Contingencies	.55	.51	.63	.46
Fire Insurance	.24	.32	.50	.43
Water Course	.09	—	—	.09
Visiting Fee	—	.85	.75	.58
Supplying	—	.01	—	.01
Roads and Drains	.55	.28	.36	.31
Weeding	3.08	2.42	5.44	4.73
Pruning	1.30	.88	2.11	.76
Cost of Manure	1.36	2.59	—	—
Application of Manure	.57	.50	—	.03
Tools	.04	.11	.14	.12
Stock, Cattle, &c.	.17	—	—	.07
Plucking and Baskets	11.21	11.96	10.68	10.65
Manufacture, Packing, &c.	3.55	4.45	4.75	4.30
Transport to Colombo	1.37	1.44	1.85	1.40
Shipping Charges	.70	.69	.67	.60
Sundries	.11	.26	—	—
Costs in cents per lb.	29.64	31.91	33.33	29.65

In matters of this kind some Companies court publicity in a manner unknown to private growers. We should greatly like to have an opportunity to compare the above figures with similar statistics relating to estates in Southern India. We do not expect to have such an opportunity, however, and must console ourselves with the reflection that we are putting before tea planters in India figures that may prove extremely useful for purposes of comparison. If even only a few such planters are induced to cast out for themselves similar calculations in regard to their estates, and to note where cost exceeds and where it is under the figures given above, the purpose in view will have been sufficiently achieved.

TEA BOXES.

A GOOD deal having been said from time to time in favour of "Venesta" tea-chests, it is as well to note that there is something to be said on the other side also. Mr. John Hill, a Ceylon planter, writes:—

I got 100 of these chests in June, 1897.

I found in the first place that it was not every carpenter who could put them together, and I had to engage and teach a special man.

Next I found that the lead foil was so thin that it tore on the least provocation. The nails go through the battens, lead, and box and are supposed to rivet themselves if you have a strip of iron to nail against. This is better in theory than in practice. In fixing the top, bottom, and fourth side of a chest, the foil is pierced by 73 fasteners, and, as each of these has three points, this means 219 holes, of course possibly minute ones, but nevertheless holes. This surely cannot be good. I may have been particularly unfortunate, but the battens sent me were not all of the same length, differing as much as 7/16 of an inch, and I had to wait until Messrs. Walker sent up a fresh supply. When the break in these chests arrived in Colombo the Agents made the following remarks in a letter:—

"With reference to break of tea now in our stores we protest most emphatically against the use of Venestas, especially when the teas are to be offered for local sale. In the first place it takes a carpenter 13 minutes to open and close a Venesta chest, as against five minutes

FOR SALE.

Hybridised Maragogipe Coffee Seed. Rs.50 per bushel.

Apply to J. G. FINDLAY, Esq., *Coonoor.*

[w. 3-12-98—17-12-98.]

for a 'Momi,' and, moreover, the clumps are so damaged by the opening that we have had to purchase fresh clumps."

This letter decided me against trying any more patents. I do not think you can put as much tea into a Venesta as into a Momi, and I made the total cost of a finished chest to be 3/45 against 2/60.

Again, Mr. E. B. Creasy writes to the *Ceylon Observer* as follows :—

While free advertisements are being freely given, please let me have one.

I am the original importer of Momi boxes from Japan. Mr. Drummond Deane was the first to draw attention to and to import Cedar boxes from Japan in 1885, and I took up the business with him. It was soon found, however, that Cedar boxes tainted some of the tea which went to London, and I then solely on my own account imported Momi boxes, which have proved to be the very best tea package which has yet been introduced.

Momi boxes are cheap, light, of even tare, perfectly free from smell, and although they have never been known to turn out more tea in London than was put into them in Ceylon like certain patent boxes are said to do, on the other hand they require no clips or tin plaisters on the corners to keep them together, and they are *much cheaper* than patent packages. They have never been known to impart a cheesy or toyshop flavour to the tea, and are quite free from streaks of turpentine resin such as white pine wood frequently shows. They have stood the test of thirteen years, and while they do not contain a superfluous ounce of material in their construction, they are sufficiently strong for the purpose to which they are put. Any native carpenter or intelligent cooly can put them together, and the only implements required are a hammer and nails.

Being in large and constant demand, the supply is fully met by importers, and is not a monopoly which ensures fair prices being maintained.

THE MANURING OF TEA.

The following is from a contributed paper in the *Planter* :— Recently there has been "much ado about nothing," in the matter of the manuring of tea. Practical planters, chemists, members of agricultural colleges, fellows of chemical institutes—all have had their say, but nobody appears to have derived any benefit from the discussions and correspondence which have been going on. Nobody appears to be a bit the wiser for it all. It may be useful, therefore, if we go back to school-day experience and remind our readers that all plants are composed of a given number (13 or 14) of simple bodies necessary in the restitution of exhausted soil. Of these bodies, four, perhaps, are the most indispensable, namely, nitrogen, phosphorus, potash and lime. The three former of these, as every planter ought to know, are the chief supporters of plant life. In the event of any one of them being deficient in the soil it becomes necessary that the loss should be supplied, as, otherwise the residue of soil becomes inert and useless, and a good crop cannot possibly be expected from it. It should also be remembered that a soil analysis gives only what the soil contains at the time of examination, and not the quantity in which these constituents may be available to the plant in assimilable form during the period of growth. This is a feature in agriculture which every one interested in its development should bear in mind.

Not many weeks ago there was an admirable article in the *Nineteenth Century*, by Dr. Aikman, giving a very definite exposition of the functions of the various micro-organisms engaged in the constitution of soils, which every planter ought to study for himself if he desires to become proficient in the subject. In that paper there is quite a wealth of hints to the uninitiated, who are told that there are, besides the four elements referred to above, others which are essential to vegetable growth, and the tiller of the soil ought not lightly to regard the efficacy of the remaining ten component parts. In the *Colonial College Magazine* we read, quite recently, an article by Mr. Freer-Thonger, whose name is a guarantee for the doctrine propounded, that it often happens that the soil may contain plenty of nitrogen, phosphoric acid and potash. But any one of these ingredients may be combined in an insoluble form, in consequence of which it is absolutely useless in the manuring plants. Hence it becomes necessary to release the inert elem by the application of a more soluble combination in which th exists a large part of the value of lime. Mr. Freer-Thonger says A growing plant can find in the soil food material of which a chen with all his manipulations could hardly find any trace. To illustr what I mean, suppose I add uniformly to an acre of land defici in potash, one cwt. of kainit. Is it likely that a chemist analys a fair sample of this soil could find any appreciable difference in amount of potash and in that of an adjoining acre of the same to which none had been applied? It is, moreover, a moral certain that no agricultural chemist places much reliance upon the chemi analysis of soils. As a matter of fact, any observant enquirer find by experiment, better than any chemist can tell him, w particular element the soil he is working is deficient in. Oftentir phosphorus is one of the ingredients necessary to vegetable which is prominently deficient. Similarly, nitrogen, in any of compounds, is rarely capable of being sustained in most soils, thou it is often largely present in soils full of humus or decayed ve table matter. In such a condition, the soil will need hea applications of lime. It must, however, be always borne in m that agriculture demands more care,—continued and extended, th the mere half-hearted method of manuring. Scientific agricultu Mr. Freer-Thonger says, is based upon a complete knowledge soils, plants, animals, and manures, and it seems evident that "u these elements are thoroughly understood, no attempts at impro ment or plans for increased production can possibly be successfu In this opinion we thoroughly agree.

TEA IN THE UNITED STATES.

The *Commercial Bulletin* reports :—

The tea trade at the moment is, according to large importers a distributors, in a most unsatisfactory condition. Reports have some weeks been freely circulated that when Congress convenes December one of the first acts will be to repeal the 10 cents per duty on tea, and these reports have induced utmost conservati among buyers. Reports from salesmen in all sections of the coun indicate a disposition to purchase for immediate requirements on and as a result the tea trade is depressed.

Aside from the indisposition throughout the country to purcha the reports of the alleged disposition to remove the duties ha caused disinclination to ship tea cargoes to the United States un the duty matter is definitely settled. According to the month statistical circular of Messrs. James and John R. Montgomery & C the total shipments of tea for the United States and Canada, acco ing to mail advices from the beginning of the season to October 1 amounted to 37,457,322 pounds, comparing with 51,981,621 pounds the same date last year, while the estimated supply for the seas 1898-9 is 83,750,000 pounds comparing with 87,711,780 pounds the season 1897-8. Following are the comparisons :—

	1898.	1897.
Total afloat, October 1st ...	7,110,921	11,334,026
Receipts to October 1st ...	30,346,401	40,647,575
Total shipments advised by mail	37,457,322	51,981,621
Leaving to be shipped ...	46,292,678	35,730,159
Estimated supply, season 1898-9	83,750,000	87,711,780

Mr. A. P. Irwin, of Irwin, McBride, Catherwood and Co.: " answer to your question as to the repeal of the tea duty, we do n think there is an intelligent merchant in the United States th believes Congress would put a duty of ten cents a pound on tea June and then take it off in December of the same year; the propo tion is preposterous on the face of it and not worthy of consideratio When Congress is prepared to make any change, it will allow amp time to merchants to dispose of their stock—one year at the ve shortest. It must also be remembered that the Government h received but a small amount of revenue from this measure on accou of the stock being kept in bond, and it is reasonable to suppose th will do nothing to interfere with the present law until this stock used up and the duty is paid.

MILLIE & REDMOND, late P. THOMPSON & CO., *Ootacamund, Engineers and Contractors.*

"The tea trade to-day is in good shape; the old stock is fairly well used up, and is only sold when demand is for the lowest grades. Jobbers through the country have small stocks and have all made money. The retail merchant is having a good business, and the increased prosperity of the country is reducing his stock faster than as usual, which brings him into the market as a buyer earlier; in fact, there has been more general inquiry and buying during the present month than for three months previous, and this demand is sure to continue with increased volume during the balance of the year.

"Now, what are the conditions in the primary markets? In every description of tea they will show decreased exports, as statistics prove. The new crop is coming forward extremely slowly; in fact, vessel owners find it almost impossible to secure cargoes. These facts all show clearly that the tea trade is in an improving condition, and that any changes in the market will be for the better. There is a good selection here now of the first crop teas, and these cannot be replaced out of the later crop at any price."

Western tea men quite agree with the foregoing views that the duty will not be removed, as will be shown by the following interviews from the "Wholesale Grocer" of Chicago:

Graham Stewart, of the W. M. Hoyt Company: "By reason of the war the United States Government has a large expense account, which is still pending. The standing army is likely to be held at 100,000 to 150,000 for some time to come, and the Navy requirements, now that so much territory has come under this country's control, will greatly exceed those previous to the war. As soon as large quantities of sugar from Cuba and Porto Rico commence to come in here, free Treasury figures will show a large falling off in the duties which have hitherto been collected on imported sugars, and it is more than probable that therefore before long a duty will be levied on coffee, and perhaps several other articles to make good this deficit. In addition to the desirability of the duty on teas as a revenue measure, this duty is particularly valuable as a police measure, restricting as it does the importation of teas which are of low value and poor quality to offer to the consumer."

TEA CULTURE IN A SOUTHERN STATE.

Another paper extracts an article regarding tea cultivation in South Carolina from the *Charleston News and Courier*. This describes how a piece of swamp land was proclaimed; and how persistent efforts produced the following results: 56lbs. green leaf in 1892; 81lbs. in 1893; 151lbs. in 1894; 333lbs. in 1895; and in the present year the estimate is 1,200lbs. The article proceeds as follows:—

There are about 900 plants in this tea garden. Oriental tea gardens usually contain about 2,000 plants to the acre. The latest production to the bush in the South Carolina experiment is five ounces of tea. In Japan the average production is not more than one ounce to the bush; in China between one and two, and in India between three and five ounces. Careful reckoning has been made of the cost of production per pound, including the items of pruning, fertilizing, cultivation, leaf picking and factory work, which foot up 27½ cents a pound, and it has been possible to sell the refined tea at a dollar a pound, even without a protective duty. The first cost of a tea plantation is considerable, but relatively less the larger the area. When the plant is once well established, it is practically for all time, the best Japanese tea being gathered from bushes two hundred years old. Enough has been done to show that this new enterprise in skilful hands can be made commercially profitable, and that without treating it as an infant industry, requiring the pap of protection; though should tea culture become more general, that would probably be demanded. Sea voyages are said to impair the flavour of tea, so if we can raise a first-class article at home, we may enjoy the beverage even in as choice condition as that in which a Mandarin drinks it.

ADVERTISING A TEA.

WHEN I called on Mr. P. C. Larkin, of Salada Tea fame, I found him knee deep in an accumulation of correspondence. He had just returned from a ten days' trip of his circuit of "Salada" agencies in Buffalo, Detroit, Pittsburg, Boston and Montreal.

"Mr. Larkin, I came down to get a little story from you about advertising. You have evidently been a successful advertiser, and what you would say would be widely read and appreciated."

"Well, it is a pretty wide subject, but perhaps I can tell a point or two that will be interesting," said Mr. Larkin.

"Why did you start into the packet tea business?"

"Because after careful study I came to the conclusion there was some money in it for the man who would go into it right and work hard for success, and I believed the people would be better served than by the then present way of selling teas. I saw the many objections to it and heard the complaints of the consumer about the tea chest lying around the grocer's shop for months at a time and each day the quality of the tea deteriorating, the flavor going off and other defects, so I decided to put up tea in lead packets and advertised it, making that the strong point, and to-day one cannot turn his head without running up against the words 'Salada, Ceylon, in lead packets only,' and I verily believe every second person I meet drinks it."

"Did you begin advertising 'Salada' as advertising is understood to-day?"

"No, I tried without advertising for two years. We worked it to the extent of our ability, but eventually saw that the people must read about it every day to have it the success I was bound to make it, so I made up my mind to make my appropriation and take to advertising."

"With what result?"

"Result! Why, in the next four years the sale of Salada Tea increased twenty-fold."

"Then you attribute the wonderful demand solely to advertising?"

"No, for I realise that to have ultimate and permanent success, my article must be a better article than any one else was offering, or at least as good as the very best. I knew to be anything short of this meant fore-doomed failure."

"So you believe success in advertising depends much on having a good thing that the people must have to advertise."

"Yes, in these days it doesn't matter how good an article is, or how pre-eminently it stands out on its merits, one cannot make any considerable headway without an incessant telling the people that you have such an article for sale. Of course, if the average span of a business man's life were 1,000 to 2,000 years, he could build a considerable trade without newspaper publicity by trusting neighbour to tell neighbour its merits. After all, this would be advertising on a small scale. I advise taking to advertising as it is understood to-day."

"As to mediums, Mr. Larkin?"

"Well, there is good in all of them. 'Salada' has been tried in many of them, newspapers most largely of course; and then enamelled signs on grocers' windows; 'Salada Ceylon Tea' posters: by sampling demonstrations by handing out cups of Salada tea at exhibitions and shows. I don't know what we haven't tried, but in my opinion there is nothing equal to the daily newspapers."

"Does this conviction apply to your United States business as well?"

"Yes, to all countries. When there is a newspaper there must be readers; and the same story told over and over again, but in a new attractive dress, is bound to create a demand and hold it. A newspaper is like a human being, it can talk back. What I mean is this, that all the objections which could possibly be advanced are forcefully met from day to day until the merited confidence is established. Other mediums have not this advantage, they simply suggest. For instance 'Salada Tea is the best' is not enough to convince some people into buying it."

"About the preparation of your advertising?"

"That's a vital point and we give it the best care. The more originality and attractiveness one can put into the arguments why people should drink 'Salada Ceylon Tea,' the more likely they are to be read. If any one doubts the efficacy of good advertising, let him name to me a single article in extensive use to-day in the world that is not largely advertised. I know of none. Do you?"

"To diverge from the strictly advertising phase of the question, have you any figures as to the growth of trade?"

"Yes, I have a few, but I guess will have to give advertising the glory that they are so large as they are. Look what has been done in the United States. Only a few years ago, Ceylon and India Teas were unknown there, to-day the consumption is 15,000,000 pounds annually."

"What brought it about?"

"Ceylon and India tea planters themselves, by going in the press on a large scale and advertising the merits of the goods, and each year the consumption has been doubling and trebling and has had the effect of nearly killing off Japan and China teas. Now Japan, to check the falling off, has taken to advertising."

"What has been the result in Canada?"

"I'll only go back a year for figures. Last year from June 1st to

September 1st, there were 556,000 pounds of Ceylon tea came direct from the Island to Canada. This year, in the same period, there were 1,745,000 pounds, and besides the wonderful increase in direct shipments, the shipments from London have increased correspondingly."

"Ever felt discouraged about the ultimate success of advertising 'Salada Ceylon Tea'?"

"No, never been discouraged, but I have good reason to be many times. For instance, our Montreal agency one week's business showed $100 expenses and gross profit $7.00. But I am not a faint heart. I have faith in a good article when advertising. Now I have a good story, put it in half a dozen words for me."

"See first that the article is right, then go ahead. Success will come as sure as night follows day."—PETER RUTHERFORD in *Business*, Oct. 20th.

AN AMERICAN MARKET REVIEW.

WE do not propose to publish a lengthy report of the American Market every week, but once in a way such figures should be of interest to planters, and probably of use to those who really study them. The length at which Japanese Tea is referred to, and the figures showing the extent of importation of this class of Tea, should attract the reader's special notice. The reports are taken from the *American Grocer*.

COFFEE.

The figures named in our market reviews are for the largest lots from first hands.

Since our last the market has lost $\frac{1}{8}$c on Brazil sorts, it probably feeling the weight of supplies and moderate trade. Mild sorts are in fair request and steady at quotations, which show no change from our last, except for Padang Interior. We quote: Padang Interior, 24½@ 25½c, with fancy mats from 28c up as high as 33c: Mocha, 16½@19½c, and some fancy lots held 1@1½c higher; Maracaibo held from 6¾@13c, with Good Cucuta at 8¾c; No. 7 Rio, 6c.

Last week the following lots were sold for consumption within our range of quotations: 4,837 bags Maracaibo, 3,619 bags Savanilla, 1,000 bags Central American, 200 bags Mexican, and 503 bags Jamaica.

In transit to Europe: 112 bags Central American, 311 bags Savanila, 1,033 bags Maracaibo, 1,160 bags Hayti, and 81 bags Jamaica.

STOCKS AND QUOTATIONS.

	Stock—Bags.	Quotations.
Maracaibo	59,183	6¾@13
Laguayra	7,259	7½@13
Coro	200	6¼@ 6¾
Angostura	522	8 @10
Savanilla	34,365	7½@17
Hayti	...	6 @ 7
Mexican	9,628	8 @14
Mocha	...	16½@19½
Ceara	...	6 @ 8
Ceylon plantation	...	17 @22
Jamaica	1,167	6½@13½
Porto Rico	840	7½@14
Central American	8,207	6 @19
Liberian	...	7½@ 9
	Mats.	
Java	97,055	18 @25
Padang Interior		24½@25½
Padang Fancy		28 @33
Macassar		17 @20

Total stock October 19, other than Rio, in first hands, 121,371 bags and 97,055 mats Java.

BRAZIL COFFEE.

(Quotations for invoice lines.)

Rio, No. 8	— @5⅞	Rio, No. 6	— @6¼
Rio, No. 7	— @6	Rio, No. 3	— @7½

Differences between grades as fixed by Exchange coffee standards:

No. 1	3.00 above No. 7	No. 6	.50 above No. 7
No. 2	2.50 above No. 7	No. 7	—— above No. 7
No. 3	2.00 above No. 7	No. 8	.50 below No. 7
No. 4	1.50 above No. 7	No. 9	1.00 below No. 7
No. 5	1.00 above No. 7	No. 10	—— below No. 7

Warehouse deliveries of Brazil for week ending Monday, Octo 24, were as follows:

	New York. Bags.	Baltimore. Bags.	New Orleans. Bags.	Total. Bags.
Tuesday	11,012	532	70	11,614
Wednesday	6,251	265	70	6,586
Thursday	10,833	735	46	11,614
Friday	9,695	3,394	35	13,124
Saturday	7,517	1,005	125	8,647
Monday	10,801	665	...	11,466

CLOSING PRICES OF COFFEE.

	Oct. 25.	Year ago.
January	5.30@ 5.35	6.10@ 6.15
February	5.40@ 5.45	6.15@ 6.20
March	5.45@ 5.50	6.20@ 6.25
April	5.55@ 5.60	6.25@ 6.30
May	5.60@ 5.65	6.30@ 6.35
June	5.65@ 5.70	6.35@ 6 40
July	5.70@ 5.75	6.40@ 6.45
August	5.75@ 5.80	6.40@ 6.50
September	5.75@ 5.80	6.45@ 6.50
October	4.95@ 5.05	5.30@ 5.40
November	5.00@ 5.05	5.35@ 5.40
December	5.20@ 5.25	6.05@ 6.10

BRAZIL STOCK.

	Bags.
Total stock in New York, Oct. 25	577,058
Total stock at all United States ports, Oct. 25	717,942
Afloat from Rio per steam to Oct. 24	206.000
Afloat from Rio per sail to Oct. 24	3,000
Afloat from Santos per steam and sail to Oct. 24	120,000
Afloat from Victoria to Oct. 24	14,000
Afloat from Bahia to Oct. 24	8,000
Total stock, including afloat	1,068,942
Same time last year	948,587

RIO DE JANEIRO, *Oct.* 25, 1898.

	1898.	1897.
No. 7 coffee ex. standard (10 kilos)	6 $ 600	7 $ 800
Exchange (private)	8½	7 11-32
Receipts at Rio (2 days)	21,000	17,000
Rio clearances to United States	9,000	13,000
Rio clearances to Europe	...	5,000
Rio stock	455,000	441,000
Rio market	Quiet	Flat
Receipts in Santos (2 days)	31,000	34,000
Santos stock	977,000	1,172.000
Santos market	Weak	Steady
Good average Santos	6 $ 500	8 $ 300

Receipts at Rio, July 1 to Oct. 24, 1898, 1,305,000 bags; same ti 1897, 1,830,000; same time 1896, 1,388,000.

Receipts at Santos, July 1 to Oct. 24, 1898, 2,756,000 bags; sa time 1897, 3,225,000; same time 1896, 2,361,000.

CHICORY.

The figures named in our market reviews are for the largest lots fr first hands.

Best German, French and domestic granulated, casks or barr 5½@5¾; best English granulated 6; Scheur's yellow and red ro and 2½ to lb. 5¾c; Eagle yellow, roll, 5 and 2½ to lb. 4¾c.

TEA.

The figures named in our market reviews are for invoices from f hands.

In an invoice way the market is very quiet. The jobbing trade slow, probably due to the special auction sale of teas by the Montgom Auction Company, comprising 13,460 packages, viz.: 406 Moyun 4,644 Amoys—very desirable invoices; 7,217 Formosas—a large a attractive assortment of all grades; 1,193 packages new c Formosas—seasons 1898-99; to be sold in Bond, but buyers w prefer to purchase duty paid can have the option of so doing adding 10½c per pound to the auction price.

YOKOHAMA, *September* 28.—There has been rather more busin doing since last report dated 19th inst., purchases during the inter amounting to 6,747 piculs. Teas ranging from 20@25 yen per pi have been most in demend. Prices have gradually weakened, s holders have shown more disposition to meet buyers. The c quality is unusually good for this time of the season. Suppl owing to bad weather, were hindered from coming forward for ab a week, and stocks consequently became reduced; but latterly arriv

are on the increase again, and there is still a large quantity of tea in this country.

Total settlements for the season to date amount to 184,519 piculs, against 197,960 piculs at corresponding date last year. Quotations :—

	Yen.		Yen.
Common ...	... 19@20	Fino	... 27@28
Good common	... 21@22	Finest	... 29@30
Medium ...	... 23@24	Choice	... 31@32
Good medium	... 25@26	Choicest	.. 33 and upward.

The following tea shipments to America have been reported since last issue: Per steamer "Indravelli" (September 8), 146,260 pounds—6,980 pounds for New York; 85,280 pounds for Canada. Per steamer "Empress of India" (September 9), 367,899 pounds—26,623 pounds for Chicago; 341,276 pounds for Canada. Per steamer "Colombia" (September 10), 462,696 pounds—95,870 pounds for New York; 125,452 pounds for Chicago; 101,891 pounds for Pacific coast; 139,483 pounds for Canada. Per steamer "Gaelic" (September 13)

GEO. HODSON,

FLORIST AND SEEDSMAN,

By Appointment to H.E. The Governor of Madras,

RESIDENCY ROAD, BANGALORE.

Telegrams: **HODSON,**

Bangalore.

Fresh Flower and Vegetables Seed. Acclimatized Seed. Standard and Dwarf Roses. Fresh Grevillea Robusta, Albizzia Molucanna, and other Tree Seeds suitable as windbelts or shade.

Terms—CASH or V.P.P.

Seeds not in stock procured at shortest notice.

[w. 3-9-98—t.f.o.]

THE PRODUCE WORLD.

A WEEKLY ILLUSTRATED JOURNAL.

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ZOMBA, BRITISH CENTRAL AFRICA.

ENGLISH TAILORING HOUSE,

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THE CHEAPEST HOUSE FOR

Gents' Dress in India.

Flannel Suits ...	...	...	Rs.25.
Serge Suits ...	...	...	„ 22 to 25.
Thick Tweed Suits	...	...	„ 25 to 27.
Viyella Flannel Shirts	...	...	„ 7
Do. Sleeping Suits	...	...	„ 15

A Trial is solicited.

[w. 3-12-98—t.f.o.]

IF YOU WANT A GOOD CURRY

ON A TEA OR COFFEE ESTATE

BUY SAVEGE & CO'S

CURRY POWDER OR PASTE,

AND YOU CAN ALWAYS HAVE IT AT

27, MOUNT ROAD,

MADRAS.

N.B.—Special List for Planters' Medicines, &c.

[w. 19-11-98—18-2-99.]

52,554 pounds—912 pounds for Chicago; 61,082 pounds for San Francisco; 10,560 pounds for Canada. Per steamer "Yamaguchi" (September 21), 135,745 pounds—895 pounds for New York, 22,785 pounds for Chicago; 33,945 pounds for Pacific coast; 78,120 pounds for Canada. Per steamer "Aztec" (September 21), 277,700 pounds --23,475 pounds for New York; 164.018 for San Francisco; 90,207 pounds for Canada. Per steamer "Mogul" (September 23), 294,268 pounds—20,827 pounds for New York; 137,665 pounds for Chicago; 6,666 pounds for Pacific coast; 129,110 pounds for Canada.

The exports of tea from Yokohama from May 1 to September 28 are as follows :—

	Current season. Pounds.	1897–98. Pounds.
To New York and the East	5,161,646	7,097,223
„ Chicago and the West	6,826,591	7,673,124
„ San Francisco and Pac. coast	2,708,728	3,103,453
„ Canada	4,232,323	4,046,703
„ Europe, etc.	346,582	144,291
Total	19,275,870	22,064,794

DISTRICT ASSOCIATIONS.

KANAN DEVAN.

MINUTES of a Quarterly General Meeting held at Munnar on the 26th November, 1898. PRESENT:—Messrs. R. Hedges, W. D. Martin, H. E. Tollemache, H. M. Knight, W. Milane, L. Davidson, G. Nicol Thomson, J. A. Hunter, T. W. Schmid, Baron J. vonRosenberg (*Chairman*), A. H. Sharp (*Honorary Secretary*), John Payne, and A. W. John (by proxy Baron vonRosenberg).

Notice calling the meeting was taken as read.

Read Minutes of last meeting. *Proposed* by Mr. Knight, and *seconded* by Mr. Hedger, that the minutes of last meeting be confirmed with the exception of the first and third paras. under the heading of Bodinaiakanur bungalow. *Carried.*

Kotagudi Road.—*Proposed* by Mr. Knight, and *seconded* by Mr. Schmid, that although this Association is not prepared to contribute as an Association to the construction of the Bodinaiakanur-Kotagudi road, it is willing to entertain any reasonable proposal by Messrs. Finlay, Muir & Co. for transporting the goods of its members, provided such rates show sufficient saving on the then ruling rates of transport. *Carried.*

Bodinaiakanur Ghat Road.—*Proposed* by Baron vonRosenberg that the Association spend Rs.700 on the Ghat Road. *Seconded* by Mr. Hedger. *Proposed* by Mr. Davidson that Mr. Sharp shall fix what share of the above sum shall be paid by the Kanan Devan Hills Produce Company. *Seconded* by Mr. Knight and *carried.*

Read letter $\frac{\text{R. C. 1483, F. W.}}{\text{21-11-98}}$ from the President, District Board, Madura, stating that the District Board Engineer had been instructed to hand over the unspent balance of the allotment for the lower portion of the Devikulam Ghat Road. *Resolved* that the Association put the work in hand at once.

Mettu Rest House.—*Proposed* by Mr. Knight, and *seconded* by Mr. W. D. Martin, that the Rest House fees be raised from 8 annas to Re.1. *Carried.*

Bodinaiakanur Bungalow.—*Proposed* by Mr. Knight that exception having been taken to the resolution passed at the meeting of 27th August, 1898, the question of the new bungalow do stand over *sine die*. *Seconded* by Mr. Martin and *carried.*

Bodinaiakanur Store.—*Proposed* by Mr. Sharp that the members of the Association making use of the old store take over the management of the same.

Proposed by Mr. Davidson that the following Committee be appointed, namely Messrs. Knight, Rosenberg, Sharp, Schmid and the proposer to decide the best arrangement. *Seconded* by Mr. Hedges and *carried.*

Votes in Association.—*Proposed* by Mr. Davidson that each estate purchased by Messrs. Finlay, Muir & Co. since the arrangement of votes was fixed by Mr. Knight, *provided* that it has not less than 200 acres in cultivation and had originally votes and vested rights in the Association should continue to hold these votes and rights. *Seconded* by Mr. W. D. Martin and *carried.*

Subscription to the U.P.A.S.I.—*Proposed* by Mr. Sharp, a*seconded* by Mr. Davidson, that the present year's subscription fixed at 9 pies per acre. *Carried.*

Proposed by Mr. Davidson, and *seconded* by Mr. Sharp, that t sum of Rs.150 be allotted towards Mr. Knight's expenses as delega at the last general meeting of the U.P.A.S.I.

The meeting closed with a vote of thanks to the Chair.

A. H. SHARP,
Honorary Secretary.

SHEVAROY.

PROCEEDINGS of a Committee Meeting of the Shevaroy Planter Association, held in the Victoria Rooms on Monday, the 5 December, 1898, at 1 P.M.

PRESENT:—Messrs. C Dickins, C. Rahm, C. G. Lechl (*Chairman*), J. C. Large, Thurston Short, Rev. J. M. Kemp and Mr. R. Gompertz (*Honorary Secretary*).

1. *Read* letter from Secretary, U.P.A.S.I., dated 22nd Nover ber, regarding classification of coffee. *Resolved* that this Ass ciation adheres to its opinion that the adoption by all *curers* o mesh of uniform size would be a step in the right direction, a would do much to make the quotations less misleading.

2. *Read* letter from Mr. Large, suggesting that steps shou be taken to promote the sale of coffee, both wholesale and reta by co-operative agency, and without the intervention of broke

Resolved that as prices of coffee have dropped to such a l point, it is, in the opinion of this Association, time that produce of the staple should now bind themselves together in the form a Co-operative Association to promote the sale of coffee direct the consumer, either in the raw state, roasted berries, or grou coffee; and that all Coffee planters in Southern India should invited to join by taking shares. That the matter should brought to the notice of every Planters' Association of Southe India by the Secretary of the U.P.A.S.I., so that the matter m be fully discussed and a plan formulated to start the concern.

3. *Read* letter from Mr. Bruce Foote, enclosing a letter fro M. Lejuge de Legrais and ten pounds of a bean recommended prevent the spread of Lantana.

Resolved that the thanks of the Association be conveyed Mr. Foote for the trouble he has taken, and that the Honora Secretary be requested to send a circular to all members of t Association on these hills enquiring whether they would li some of the seed to experiment with.

4. *Read* letter from Mr. Thurston Short, forwarding the o Rules of the Association with the alterations that have be made from time to time. *Resolved* that they be circulated to t members of the Committee who will note any alterations th propose; and that they be brought up, at the next meetin together with the proposed new Rules framed by Mr. Thurst Short.

Read and *recorded* the following letters :—

9/U.W. Circular from the Secretary, U.P.A.S.I., regardi the reduction of the British tea duty.

11/U.W. Circular from the Secretary, U.P.A.S.I., forwar ing copy of a letter received from Mr. Geo. Rouse to the Cha man regarding the classification of coffee.

15/C. Letter from Messrs. Peirce, Leslie & Co., informi that the cost of their coffee pass books is Rs.2 each.

15/D. Notification stating that the Plague regulations h been made applicable to South Canara.

26/C. Letter from the Collector, requesting a reply to letter, No. $\frac{1633}{\text{L F.}}$, dated 28th October, 1898, regarding the repairi of the Chembanauth Road, and how much of the estimated c the planters are prepared to contribute.

15/S. Letter from Mr. Thurston Short, informing that t Nagalore Planters are unwilling to subscribe more than th

PEIRCE, LESLIE & CO.

CALICUT, COCHIN, TELLICHERRY, MANGALORE.

LONDON OFFICE:— 14, BILLITER STREET, E.C.

CALICUT PRICE LIST
OF
ESTATE REQUISITES AND MANURES.

N.B.—We are prepared to indent home for any and all kinds of estate requirements not kept in stock or enumerated in this list.

		Rs.	A.	P.
ESTATE TOOLS—				
Round Eye Felling Axes (steel), 4 lbs. weight	per doz. ...	20	4	0
Do. do. do. 2½ „ „	„ ...	15	0	0
Pick Axes, 6½ lbs. (well steeled)	„ ...	16	8	0
Bill Hooks, (Barcutties) 12″ blade, bright steel	„ ...	18	0	0
Do. Kentish, with back, steel, 2¼ lbs. wt.	„ ...	16	0	0
Bushel Measures (Galvanized), Imperial Stnd. ...each	...	15	0	0
Watering Cans, (Galvanized) "Nonsuch," 2½ gals. each	...	4	8	0
Do. do. do. 2 „	...	4	0	0
Steel Digging Forks. *Steel strapped all along handle.*				
4 & 3 pronged per doz. Rs.39-0-0 &		33	0	0
Grass Knives, socket handle, steel ...	per doz. ...	12	12	0
Hammers, 6, 7, & 8 lbs.	per lb. ...	0	6	0
Handles, Digging Fork	each ...	0	14	0
Lining Ropes, { abt. 600 feet ...	„ ...	17	0	0
Tarred Russian Hemp { „ 300 „ ...	„ ...	8	8	0
Mamooties, Steel 10″x 8″ & 9″x 7″ abt. 4 lbs. wt.	per doz. ...	12	12	0
Do. Iron 10½ x 8½ & 9½ x 8 abt. 3¾ lbs. wt.	„ ...	7	8	0
Quintanies, Steel 15″ × 6,″ 5½ lbs. weight ...	„ ...	18	0	0
Do. 9½″ x 5,″ 3¼ „ „ ...	„ ...	14	4	0
Manure Pans, (Galvd.) 8″ deep x 18″ top x 10″ bottom	„ ...	23	4	0
Pitting Bars (Alavangoes), well-steeled points,				
3″ spade end, 45″ long, 9 lbs. weight... ...	„ ...	16	8	0
3″ do. 36″ do. 6½ do.	„ ...	12	12	0
Pruning Knives, English make, best steel, 4″ blade	„ ...	9	0	0
Do. Saws, do. do. 14″	„ ...	18	0	0
Seamless Bags (for coffee transport to coast) 42″ x 20″	„ ...	9	12	0
Shovels, round nose, T handle	„ ...	12	12	0
Tea Transplanting Spades, steel, sharp edges...	each ...	2	8	0
Tea Transplanters.—Made to Planters' Samples.				
TEA PACKING REQUISITES, Etc.—*(For Nails see opposite.)*				
Chests Full 24 x 19 x 19 (outside) ½ in. planks	each...	1	1	0
Half 16 x 16 x 16 („)	do „ ...	0	13	0
Quarter 14 x 12 x 10 („) ⅜	do „ ...	0	9	3
Deld. Metapol., Palghat, Calicut. Any dimensions, proportionate prices.				
Lead—BEST INCORRODIBLE. 4½ oz. Per case of 2 cwts:—				
127 sheets 37″ x 22″	„ ...	32	0	0
240 „ 25″ x 19″ or 93 sheets 65″ x 19″	„ ...	32	0	0
586 „ 14″ x 14″	„ ...	30	0	0
50 „ 84″ x 22″ for sides }				
100 „ 21″ x 16″ „ tops and bottoms }	„ ...	30	0	0
Hoops, Steel ½″ (abt. 3,000 feet to the cwt.) ...	per cwt. ...	15	0	0
Solder (Sticks) per case of 1 cwt. Rs. 50, or	per lb. ...	0	8	0
Soldering Fluid	per bottle ...	2	0	0
Do. Irons	each ...	2	0	0
Stencil Ink black, in round tins...	„ ...	1	0	0
Do. Brushes	„ ...	0	12	0
Tea tasting Pots and Cups	per doz. ...	10	8	0
Tea Sieves, brass No. 6, 8, 9, 10, 12 mesh	each ...	6	0	0
Do. do. bottoms do.	„ ...	3	8	0

		Rs.	A.	P.
WINDOW GLASS—per case of 100 sq. ft. (all sound) ...		15	0	0
12×10 (120 panes), 16×14 (64), 18×14 (57),				
22×18 (36), 24×20 (30), 28×24 (21), 36×24 (17) and 36×30 (13).				
COFFEE PULPERS—*To order only. One month required for delivery.*				
Agents for:—MESSRS. WALKER SONS & Co., LD.				
COIR MATTING—Per rolls of 60 feet long x 3 feet wide:—				
* Machine-made Yarn:—Superior Rs.15; Fine		12	8	0
* Ordinary Twill Bungalow		7	0	0
No. 1 Estate, Double (for coffee drying, etc.)		2	8	0
„ 2 „ „ (do.)		2	4	0
Shade (for nurseries, ferneries, &c.)		2	0	0
* *Coloured stripes to order. Samples on application.*				
ASPHALTE—				
In barrels of 6¼ to 8½ cwts. gross (tare 56lbs.) per cwt. net...		4	0	0
PORTLAND CEMENT—John Bazely White and Bros.				
"Whites" Best ℔ barrel of abt. 375 lbs. net ...		11	12	0
Sole Agents for S. Canara, Coorg, Malabar, Coimbatore, Travancore.				
COAL TAR—				
Best ℔ barrel of abt. 4 cwts. gross (net about 3¼ cwts.)...		20	0	0
GALVANIZED IRON—				
Continuous Iron. For roofing, etc.				
In rolls of 100 ft. x 2 ft. 28 G. (per ft., 7 as.) per roll ...		35	0	0
Nails 1 in. flat headed for fixing the above per 1,000 Nails...		1	5	0
Corrugated Iron (English), 24 G. 2 ft. wide ... per cwt....		11	0	0
Lengths in feet 5 6 7 8 9 10				
Sheets to the cwt. (abt.) 8·25 6·95 5·85 5·10 4·55 4·10				
Selected sheets Rs. 1/9 1/12 2/1 2/6 2/10	2/15 each.			
Iron Ridging, 6 ft. x 6 inch lap.	per length...	1	8	0
Bolts and Nuts, ¼″ x ¾″	per gross ...	1	14	0
Rivets	„ ...	0	12	0
Washers, Iron	„ ...	0	10	0
Do. Lead	„ ...	1	2	0
Screws, 2½ in.	„ ...	2	4	0
Lead headed nails, 2½ in.	„ ...	2	12	0
NAILS—Wire, French.				
℔ 1 cwt. keg { 1″ 1½″ 2″ 2½″ 3″ 4″				
{ Rs. 13/12 11/8 11/ 10/8 10/ 9/8				
℔ pound annas 2¾ 2½ 2¼ 2¼ 2 1¾				
Nails ℔ lb. (*abt.*) 600 250 150 100 50 30				
Triangular Barbed Wire Nails.				
℔ 1 cwt. keg { 1″ 1½″ 2″ 3″ 4″				
{ Rs. 11/4 9/8 8/12 8/0 7/8				
LUBRICATING OIL FOR OIL ENGINES:—				
A blend of the finest and best oils.				
In drums of 5 Imperial gallons	per drum ...	15	0	0
PERMANGANATE OF POTASH	per lb. ...	1	6	0
Used by the Medical Authorities for purifying wells, drinking water, etc.				

MANURES.

Fish Guano. **Steamed Bone Meal.** **Poonac:**—Castor, Mowra, Hoongay. **Saltpetre, Crude and Refined** (Nitrate of Potash.)
Nitrate of Soda. **Sulphate of Ammonia.** **Sulphate of Potash.** **Muriate of Potash.** **Superphosphates.** **Phosphate Powder.** **Kainits Salts.**

Mixtures can be made in any proportion without extra charge. **Packing** can be done to suit transport by bullocks, etc.

Prices will be furnished on application for delivery either at our Karaparumba Works, Calicut, the Calicut Railway Station, Palghat, Mettapollium, Salem, or at our godowns in Cochin, Tellicherry, Mangalore and other places.

Quotations will be obtained and orders booked for any Manures not kept in stock. F.r.m.

have already promised towards the repairs of the Chembanauth Road.

The following papers were laid on the table :—

Proceedings of the Nelliampathy Planters' Association, dated 2nd November, 1898.

Proceedings of the Wynaad Planters' Association, dated 2nd November, 1898.

Planting Opinion, five copies, dated November 5th, 12th, 19th and 26th, and December 3rd.

Central African Times, four copies, dated September 10th, 17th, 24th, and October 1st.

Agricultural Ledgers.—No. 12 (The Carrot), No. 13 (Sugarcane disease).

Proceedings of the Planters' Association of Ceylon for year ending 17th February, 1898.

(Signed) C. G. LECHLER,
Chairman.

(Signed) ROBERT GOMPERTZ,
Honorary Secretary.

HEALTH AND HARD MUSCLES.

IF John Simpson were not a blacksmith we might not have occasion to allude to him at the very outset of this writing. But he *is* a blacksmith and will thus serve an important purpose; that, too, without having to put on his leather apron to do it.

And he will do it by standing in front of his forge for five minutes while we all take a look at him. He is a strong and robust man, as Mr. Dickens's Joe Gargery was—as all blacksmiths ought to be. Ought to be, I say. But *are* they?—as a matter of fact? No, they are not—not by many a length of nail rod.

Now it is somehow a common notion that all men who work hard, especially amid rough surroundings and in the fresh air, are apt to be vigorous, healthy fellows; they are supposed to joke at doctors, to have no use for apothecaries, and even to regard undertakers as the necessity of a distant future. Is this view a true view? Are health and hard muscles always found together? Take your time to think. Meanwhile we will hear what Mr. Simpson himself says :—

"Up to the spring of 1885," he writes in a letter dated May 5th, 1893, "I was strong as most men—perhaps stronger than most. Then I began to suffer from illness. My victuals and I had a falling out. After every meal I had great pain and fulness of the chest. Then I got into such a condition that I had these feelings nearly all the while. I tried to avoid them by eating nothing but light food, but the result was just the same. I think a morsel of bread would have hurt me almost as much as a round of beef. Then I began to lose weight, and had all I could do to keep up with my work. The doctor gave me medicine, but I got no help from it.

"I was wondering how this would end when I heard of Mother Seigel's Curative Syrup and bought a bottle of it from Mr. James Crossley, the grocer at Mile Walk. The effect was speedy. It appeared to go straight to the right spot, and it wasn't long before I was able to eat without any pain to follow. Then my strength and flesh gradually came back, and ever since I have done my work as easily as I did before the disease, whatever it was, overtook me. (Signed) John Simpson, Cliviger, near Burnley."

Now, about that health and hard muscle question that I put to the reader; what's the answer? Why, of course, the answer is what any intelligent man would make who thinks with his eyes open. No; health and hard muscles are not always found together. But let us look sharp and commit no errors. The facts run this way: While a man cannot grow strong without a certain degree of health, it is also true that a notable amount of muscular power is consistent with both organic and functional trouble of the stomach, liver, kidneys, or heart. A man may be able to lift 500 pounds, and drop dead within a minute after he does it.

Sailors, farmers, miners, drivers of trams, busses, &c., outdoor labourers of different sorts (especially after reaching mid life) nearly all fall victims to rheumatism, nervous debility, or dyspepsia. Yes, and do hard work for years just the same.

I said "*or*" dyspepsia. Leave out the "or" and say dyspepsia—dyspepsia only—and you have struck bottom. This produces all the other maladies; they are merely results and symptoms of There's no keeping clear of it by running off to sea, working o farm, or diving down into a mine. No matter where you go, or w you do indoors or out, clerking in the Bank of England, or drivi the locomotive of the Scotch Express—*dyspepsia* will get hold you if you give it a chance. And most men do *that* as if they w as eager to be ill as they are to be rich. Which reminds me to t you in a subsequent article how to avoid dyspepsia. For this ti I can only speak of how to cure it. Imitate John Simpson's examp Do what he did. And remember that stalwart men (all unconscio often stand nearer a bed of pain, nearer death, than do the feel women whom they pity.

MARKET REPORT.

COFFEE.

Messrs. Wm. Jas. & Hy. Thompson's Report of the Colonial Markets for Week ending November 16th, 1898, states :—

We have no change to report in this market which continues very qu prices show no improvement, and the business done very small. Br markets are quieter.

The improvement reported in Futures continued until the end of l week, but since then prices have declined, the closing being about 1s below the highest, and 3d below last quotations, viz. :—Good aver Santos in Havre, December delivery, fcs. 37.50, in Hamburg pf. 31½, No. 7 low ordinary Rio in New York $5.30.

Daily receipts averaged 7,800 bags in Rio and 15,500 bags in Santos.

To-day's London official quotations are :—

	Nov.	Dec.	Mar., '99.	May.	July.	Se
SANTOS ...	30/6	30/6	31/6	31/9	31/9	32

We quote :—

Ceylon, mid. to good mid.	101/	@108/	
Do. small to low mid.	79/	„ 99/	
East India, mid. to good mid...	70/	„ 92/	
Do. small to low mid.	58/	„ 72/	
Guatemala, mid. to fine...	66/	„ 98/	
Do. good ord. to low mid...	50/	„ 64/	
Salvador, good ord. foxy greenish...	38/	„ 42/	
Costa Rica, mid. to fine...	69/	@1	
Do. ord. to low middling.	37/	„	
Jamaica, good to fine ord.	32/	„	
Do. greenish to fine colory...	65/	„ 1	
African ...	26/	„	
Columbian, ordinary ...	36/	„	
Do. good ord. to low mid...	42/	„	
Do. mid. to fine...	64/	„	

Receipts in Brazil to 16th November compare as follows with previ years :—

	1898-99. Bags.	1897-98. Bags.	1896-97. Bags.
RIO ...	1,469,000	2,146,000	1,701,000
SANTOS ...	3,097,000	3,691,000	2,841,000
	4,566,000	5,837,000	4,542,000

The *London Commercial Record* of 18th ultimo says :—

Nothing has occurred to break the monotonous flatness in this mark The supplies at public sale have again been on a small scale, but e these have only partly found buyers. No Ceylon has been brought f ward, and the little business in East India has been in small lots of import at easy rates. Costa Rica and Central American kinds are m than usually quiet, but a fair amount of Columbian has been sold at ste prices for colory and rather cheaper rates for good to fine ordin qualities. "Futures" have shown a falling tendency, and closing pri are lower, viz. :—

London	...Santos ...	March	delivery ...	31s. 3d.
New York	...No. 7 Rio ...	„	„ ...	5.60 cents.
Hamburg	...Santos ...	„	„ ...	31¾ pf.
Havre	...Santos ...	„	„ ...	37⅝ francs.
Holland	...Good ordinary Java ...		...	33 cents.

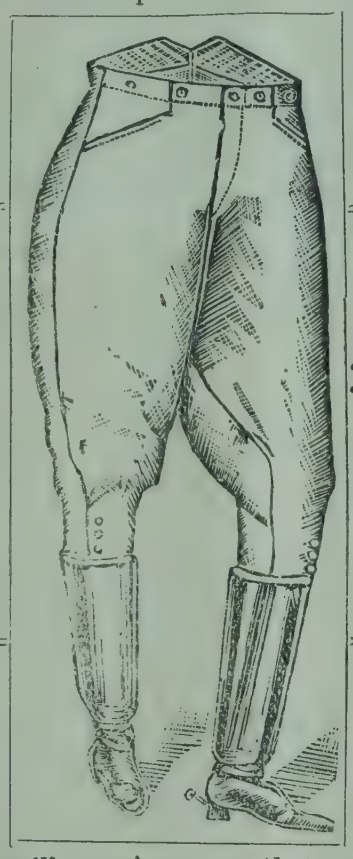
The Dutch Trading Company announce their next public sale for Tu day, the 22nd inst., when 20,500 bags 50 cases will be offered agai 22,079 bags in 1897. Good ordinary Java is valued at 33½ cents.

Imports, Deliveries and Stock of Coffee in London are as follows :—

		STOCK.		IMPORTS.	
		1898.	1897.	1898.	1897
West India ...	tons	448	280	1,694	84
Ceylon ...	„	104	153	326	57
East India ...	„	1,352	1,363	5,638	5,24
Mocha ...	„	535	422	863	60
Brazil ...	„	4,158	2,732	4,045	3,13
Other Foreign ...	„	10,656	4,998	29,506	22,89
Total ...	„	17,253	9,953	42,072	33,30

BREECHES TRADE.

Breeches-making is a *specialité* with us. **Mr. Smith,** the proprietor, deals with every pair, and we warrant turning them out to satisfaction as regards fit, style and workmanship.



OUR SPECIAL:

MILLERAIN

KHAKI TWILL

8/8 BREECHES.

Putties 8 ft. long Rs.2.

Box Cloth Leggings Rs.9.

Newmarket Leather Leggings Rs.12.

Read this letter; it will convince you that we *can* make Breeches. **Mr. H. S. Dickins,** of Yercaud, writes: "*The Breeches received; they fit me perfect. I can, with confidence, recommend you as Breeches Makers to all my friends. We get our kit from Bombay, and have to pay about double your price.*"

[w. 1-10-98—31-3-99.] **E. D. SMITH & CO., MADRAS.**

WIELE'S STUDIO,

SOUTH PARADE, BANGALORE.

The Studio, *par excellence* for High Class Artistic Photography in all its branches.

BROMIDE ENLARGEMENTS from any picture, however faded or otherwise damaged, carried out to perfection.

OIL PAINTINGS, and Crayon Drawings unsurpassed.

Out-door Photography at a moment's notice.

PHOTOGRAPHS of moving objects, such as horses in action, Ladies and Gentlemen riding their bicycles, &c., always successful.

Picture Framing in good Taste and First Class Workmanship.

VIEWS OF SOUTHERN INDIA.

Terms Moderate. MR. E. F. H. WIELE conducts his Studio personally.
[w. 15-10-98—14-1-99.]

TO PLANTERS.

PLANTERS WHO REQUIRE

Estate Tools, **Bricks,**

Stores, **Tiles,**

Medicines, **Portland Cement,**

Machinery, **Ironwork (repairs, &c.)**

Corrugated Iron Sheets, &c.,

are requested to communicate with

THE INDIAN TRADING CO., Ld.,

11/12, 2nd LINE BEACH, MADRAS.

Prices on application.

		Home Consumption.		Export.	
		1898.	1897.	1898.	1897.
West India	... tons	300	311	1,284	601
Ceylon	... „	124	172	204	370
East India	... „	2,230	2,138	3,163	2,556
Mocha	... „	656	499	167	210
Brazil	... „	882	1,263	1,979	2,379
Other Foreign	... „	8,129	8,218	15,392	12,778
Total...	„	12,321	12,601	22,189	18,894

The preceding figures exhibit—

In the imports an increase this year of 8,766 tons.
Home consumption a decrease of 280 „
Export an increase of ... 3,295 „
Stock an increase of ... 7,300 „

This week's auctions have gone off as follows :—

EAST INDIA.—240 bags partly sold :—*Neilgherry*, smalls 46s to 56s, low middling 61s 6d.

MOCHA.—87 half-bales retired.

ABYSSINIAN.—107 half-bales bought in.

NYASALAND.—120 bags mostly sold—smalls 54s; London-cleaned, smalls 57s 6d to 66s, good medium 85s to 88s, bold 94s 6d to 100s, peaberry 92s 6d to 104s.

JAMAICA.—25 bags sold—ordinary at 26s 6d to 32s.

COSTA RICA.—Of 1,160 bags catalogued about 160 bags sold—smalls to 33s 6d, good ordinary dull pale 38s to 38s 6d.

GUATEMALA.—1,062 bags offered and 250 bags sold—smalls 26s to fine to fine fine ordinary 45s to 52s 6d.

SALVADOR.—Of 32 bags offered 50 bags low mixed brownish sold at

MEXICAN.—150 bags bought in.

VERA PAZ.—46 bags partly sold—smalls 27s 6d.

COLOMBIAN.—Of 2,113 bags catalogued about 830 bags sold—smalls 6d to 40s 6d, ordinary to good ordinary pale 36s to 38s 6d, fine to fine ordinary 45s to 54s, middling 69s 6d; London-cleaned, smalls 28s to damaged and dull soft greenish mixed red 50s 6d to 55s, low middling greenish 58s 6d to 60s, middling colory greenish 65s to 68s, good m dling colory 70s to 76s 6d, peaberry 70s to 84s.

BRAZIL.—Of 1,775 bags washed Santos on landed terms offered 120 b small sold at 31s.

The following statement shows the movements of Rio and Santos fr July 1, 1898, to Nov. 11, 1898, compared with the two previous years :-

	Rio.		
	1898-9	1897-8	1896
Receipts ..... bags	1,429,000	2,095,000	1,629,
Shipments to Europe	409,000	762,000	405,
Ditto United States	776,000	1,113,000	884,
Stocks.....	387,000	435,000	325,
	Santos.		
Receipts.....	3,048,000	3,628,000	2,770,
Shipments to Europe	1,984,000	2,126,000	1,710,
Ditto United States.....	591,000	427,000	630,
Stocks.....	820,000	1,149,000	525,

HIGH CLASS TAILORING.

We have now secured the services of Mr. W. J. Marden, whose experience as a Cutt and Practical Tailor extends to a period of over 20 years in some of the leading houses England and India, and whom we can, therefore, confidently recommend as a veteran expe cutter. Having placed our Tailoring Department under his control, we guarantee perfe Fit and Style. This assurance, coupled with our proverbially Cheap Rates, will, we tru induce you to give us a trial order, which we respectfully solicit.

FREE CHRISTMAS GIFTS.

We are giving away 4 Bicycles and 200 useful Prizes. Numbered Ticket is given f the purchase of every 2 Rs. worth of goods. Drawers of the lucky numbers will receive t prizes free.

ROYAL EMPORIUM,
BANGALORE

[w. 3-9-98—t.f.o.]

Agents for LEA & PERRINS' WORCESTERSHIRE SAUCE.

CROSSE & BLACKWELL'S, LTD.

By Special Warrant Purveyors to The Queen AND Empress of India.

CELEBRATED OILMAN'S STORES.

[w. 1-10-98—t.f.o.]

Havre, Nov. 17.—Market quiet. Santos good average December opened at 37½f and closed at 37¼f., March opened at 38f and closed at 37⅜f.

Hamburg, Nov. 15.—Good average Santos December opened at 31¾m and close at 31½m. Nov. 16.—Market closed.

New York, Nov. 16.—Closing prices of No. 7 Rio were as follow :—

	Nov.	Dec.	Jan.	Feb.	Mar.
Nov. 16...	5.20	5.30	5.40	5.50	5.60
Nov. 15.....	5.20	5.35	5.45	5.55	5.65

To-day's auctions offered :—20 barrels Jamaica, 49 bags Liberian, 149 bags Imitation Java, 650 bags Nyasaland, 404 bags Guatemala, 382 bags Salvador, 92 bags Mexican, 651 bags Columbian, 245 bags New Granada, 80 bags Peruvian, 261 bags Costa Rica, and 352 bags Guayaquil. The sales went off flatly, except for Guayaquil and common Costa Rica—the former sold 1s to 2s per cwt. dearer—the latter full up.

A Neilgherry Coffee estate's production (16 tons) shipment during the season has been sold at 70s per cwt. c.i.f. Hamburg.

TO-DAY'S HAVRE AND HAMBURG COFFEE TERMINAL QUOTATIONS.

(*Communicated by Mr. Edward Nauen.*)

	Havre.			Hamburg.	
	10.15 a.m.	12.15 p.m.	3.30 p.m.	10.15 a.m	2.30 p.m.
Dec., 1898	37⅜	37⅜	37⅜	31¼	31¼
March, 1899.....	38¼	38¼	38¼	32	32
May.....	38⅜	38⅜	38⅜	32¼	32¼
Sept.....	39½	39½	39½	33	33
	Steady. Sellers.	Steady. Buyers.	Steady. Buyers.	Steady. Value.	Steady. Buyers.

IN NEW YORK.

2nd Nov. 1898.—Since our last the market has ruled easier, No. 7 Rio ranging from 5¾ @ 5⅞c, and No. 3, or Fair, at 7¼ @ 7½c. An invoice of No. 4 Santos sold at some improvement, bringing 7c. Trading is not active. Deliveries are running behind last year at this time. There is a quiet trade in mild sorts, with Padang Interior well held from 24½ @ 33c —the latter for very fancy. Quite a stock of Maracaibo here, with prices ranging from 6¾ @ 13c. Good Cucuta, strictly up to grade, will bring, in a jobbing way, 8¾c. Mocha, 16½ @ 19½c, with some fancy grades held higher.

TEA.

CHINA.—Congous have been in only poor request since our last, says the *Record* of 18th ultimo, but Scented Capers experienced more demand in the early part of the week at very full prices, although not much sold later owing to the firmness of holders. Auctions have offered 10,055 packages—a very large proportion being Scented Caper and Green Teas—but not a great deal sold.

INDIAN.—Public auctions were rather smaller, embracing 46,800 packages contrasted with 50,000 packages last week and 46,300 packages at this period in 1897.

A steady demand prevailed for most descriptions, the chief enquiry being for fairly good to medium sorts with attractive liquor, particularly when there was a trace of cold weather flavor perceptible. No doubt the moderate range of prices ruling for these for some time past has attracted attention not only from home buyers, but also from the Continent. Common and ordinary Pekoes and Pekoe Souchongs were scarcely in so much request and occasionally easier. Fine and finest passed without material change. A larger assortment from Southern India (chiefly from Travancore) was brought forward, some of the invoices shewing improved quality and useful character.

For 32,800 packages on Estate Account 8⅜d was realised, *versus* 8⅝d per lb. for 32,200 packages, and 8¾d per lb. for 36,300 packages in the two preceding seasons respectively.

CEYLON.—Sales included 18,300 packages compared with 17,900 packages on the 8th inst. and 20,400 packages a year ago.

Competition was brisk for leafy kinds under 8d per lb., which in some cases sold fractionally dearer, but above this bidding was at times not so keen. Rates for Broken Pekoes between 10d and 1s 2d per lb. varied somewhat, though on the whole not much alteration in quotations was noticeable. Finest, however, were more wanted, and some high figures were recorded for Flowery Pekoes and Broken Orange Pekoes, notably Valamaly 1s 10½d, St. Clair 1s 8d, Talawakelle 1s 7d, Henfold 1s 5½d, Tillicoultry 1s 4¾d, Elgin, &c., 1s 3½d, Battalgalla 1s 3¼d per lb.

The average is slightly over 8½d per lb. On the 10th inst. it was 8⅜d per lb., and the same in 1897.

JAVA.—In the absence of business there is nothing to report, except that 432 packages are advertised for the 24th inst.

Deliveries.

The clearances of all Tea (on which duty has been paid) from the London warehouses, as per official returns, were :

From 1st to 15th Nov., 1898	9,741,809 lb.
„ „ 1897	8,908,687 „

During the week the following have been printed for sale by public auction :—

	Sold. Pkgs.	Withdrawn. Pkgs.	Total offered. Pkgs.
India	40,564	6,283	46,847
Ceylon	16,800	1,483	18,283
Java	—	—	—
Total	57,364	7,766	65,130

Also 1,048 packages from second hands.

Messrs. Gow, Wilson and Stanton's Indian, Ceylon, and Java Tea Report, dated November 18th, 1898, says :—

QUANTITY BROUGHT TO AUCTION IN LONDON

FROM 1ST JUNE TO DATE.

	Indian.	Ceylon.	Java.
1898-1899.	732,842 pkgs.	568,882 pkgs.	21,456 pkgs.
1897-1898.	728,226 „	595,081 „	19,727 „

47,778 pkgs. Indian
18,727 „ Ceylon
— „ Java.
} Total 66,505 packages were offered in public auction this week.

Details of the direct exports of Indian Tea from Calcutta have recently been published by the Indian Tea Association, and afford useful information as to the localities now taking Indian Tea. Australasia, America and "Indian Ports" show a large business, while Turkey has taken a considerable quantity; that for China has probably gone to North America. Germany, Persia and Russia are all increasingly important markets.

Direct exports of Indian Tea from Calcutta (in lbs.) to places outside U. K. 1st Jan. to end September.

	1898.		1898.
Australasia ...	3,691,538	France ...	15,556
Indian Ports ...	2,612,817	Norway ...	5,480
Turkey ...	1,703,975	Egypt ...	5,740
N. America ...	1,496,966	S. America ...	3,500
China ...	437,777	Austria ...	2,740
Germany ...	281,292	Other places ...	11,785
Persia and Arabia ...	238,342		
Russia ...	130,254	Total lbs. ...	10,685,152
Straits Settlements ...	25,652		
Africa ...	21,785		

Indian.—The market remains much in the same condition as noticed last week, although support was not so well distributed. Some of the low priced Teas were less eagerly bid for, competition having apparently been diverted towards other and better liquoring descriptions. These have lately been selling at comparatively cheaper rates and fully warrant the careful attention which buyers now appear to be giving them. The official wire gives exports to U. K. for first half of November as lbs. 9,810,000, against lbs. 9,990,000 same period 1897, making the total from 1st April to date lbs. 100,847,000, against lbs. 98,130,000 to same date last year.

Week's av. of Tea sold on Garden Account, 1898, 32,988 pkgs., av. 8·23d. 1897, 33,161 pkgs., av. 8·44d.

	1898.		1897.		1st June to date 1898.		1st June to date 1897.	
	Pkgs.	Price.	Pkgs.	Price.	Pkgs.	Price.	Pkgs.	Price.
Assam ...	18,035	9·41	17,606	9¼	259,323	9·91	248,030	10·46
Cachar & Sylhet...	7,163	6·25	10,656	7¼	101,085	6·02	132,103	7
Chittagong ...	472	6·62	100	6¼	1,345	6·41	3,423	7·11
Chota Nagpore ...	82	550	137	5¾	635	5·12	804	4·84
Darjeeling ...	2,016	9·37	1,552	10	48,618	10·88	40,328	11·30
Dooars ...	3,450	6·88	1,760	8¼	67,730	7·19	59,595	7·68
Kangra, &c. ...	—	—	36	8¼	4,442	6·57	4,624	7·48
Neilgherry ...	405	6·58	207	7	2,790	6·51	3,760	6·84
Terai ...	126	7	633	7¼	8,692	6·36	13,902	7·27
Travancore ...	1,239	6·36	474	6¾	21,382	6·14	17,273	6·41

Ceylon. Slight advances were here and there paid for the lower grades of Tea ranging up to 6½d., but the weakness recently noticed in the finer grades was even more pronounced, sellers being frequently obliged to accept somewhat lower prices, while the market for these grades showed decidedly irregularity. Private telegraphic advice gives exports for the first half of the month as lbs. 3,500,000, against lbs. 2,700,000 1897, and estimates the total for the month as 6,500,000 lbs., against actual shipments of lbs. 6,750,000 last November. Avge. for week 8·38d., agst. 8·58d. 1897.

Ceylon Tea sold on Garden Account 1st Jan. to date 1898, 994,850 pkgs., av. 7·74d. 1897, 970,971 pkgs., av. 7·76d.

		1898.	1897.	1896.	1895.
PEKOE SOUG.	(Ordinary leaf; fair liquor) ...	6½d	6½d	6¼d	6¾d
PEKOE.	(Ordinary leaf; little twist; fair liquor) ...	7¾d	7½d	7¾d	8d

		1898.	1897.	1896.	189
PEKOE SOUG.	(Rather bold leaf; indifferent liquor)	5¼d	5d	5d	5½d
PEKOE.	(Somewhat bold leaf; indifferent liquor) ...	5¾d	5¾d	5¾d	6¼d

Javas were not represented, but 432 packages are advertised for ne week.

PUBLIC SALES FOR SOUTH INDIAN TEA.

(AVERAGE FOR ALL INDIA 8·23d.) *November 18th.*

GARDEN.	Total.	Average.	Broken Org. Pek. or Flowery Pekoe.		Pekoe and Unassorted.		Broken Pekoe.		Pekoe Souchong.		Broken and Souchong.		Fannings, Dust and Various.	
	Quantity	Price.	Quantity	Price.	Quantity	Price.	Quantity	Price.	Quantity	Price.	Quantity	Price.	Quantity	Price
Neilgherry ...	**405 p**	**6·58**												
Curzon ...	97 p	6½	35½ c	7	23	6¾	...	...	39	6	...	...	...	...
Glendale ...	34	8¾	20	9½	9	7	5	9¼	...	...	...	...	...	...
New Hope ...	274	6¼	62⅛ c	8½	65	5½ 5¾	58½ c	8¾	89	5	...	...	...	...
Travancore ...	**1239 p**	**6·36**												
Atchencoil ...	57	6¼	...	...	28	5¾	29	6¾	...	...	...	...	...	...
Balamore ...	70½ c	6¾	...	...	42½ c	6	25½ c	8½	...	...	3½ c	5	...	...
Bon Accord ...	68 p	7	...	...	23	6½	27	8	9	5½	...	...	9	5¾ 6¾
Braemore ...	126 p	6	...	...	47	6	45	6½	...	...	18	5	16½ c	4½ 6¾
Cheroot Mallay ...	79 p	5½	...	...	58 p	5¼	20½ c	6¼	...	...	...	...	1½ c	5
Chevian Malay ...	81 p	6½	81 p	6 7¾	...	...	...	...	...	...	...	...	...	...
Corrimony ...	132½ c	7¾	...	...	80½ c	6½	47½ c	9¾	...	...	2½ c	5	3½ c	4½
Kanan Dev Hil AM..	130½ c	6¾	...	...	33½ c	6	65½ c	7¾	32¼ c	5¾	...	...	...	...
Merchiston ...	48 p	6	17½ c	7	19	5½	9½ c	6¾	...	...	...	...	3½ c	4¾
Malapara ...	17	5¼	...	...	17	5¼	...	...	...	...	...	...	...	...
Poonmudi ...	145 p	5¾	...	...	70 p	5½ 6	41 p	6 6½	18	5½	...	...	16½ c	3½ 5¾
Seafield ...	70½ c	6½	...	...	45½ c	5¾	23½ c	8¼	...	...	1½ c	4¾	1½ c	3½
Vembenard ...	100	6½	...	...	28	6	47	7¼	13	5¼	4	5¾	8	5¼
W ...	7½ c	8½	...	...	7½ c	8½	...	...	...	...	...	...	...	...
Wallardie ...	109	6½	...	...	34	5¾	41	8¼	20	5¼	...	...	14	5¼

IN AUSTRALIA.

For export 1,000 half-chests of common Panyongs taken up ex the last arrival. For home consumption 1,200 half-chests sold. Ceylons and Indians both steady, with a good demand.—Melbourne *Leader*, Nov. 12.

IN NEW YORK.

2nd Nov., 1898.—The invoice market is quiet. The Amoy market is reported by cable as half a cent higher, with good superior quoted at 15c. To-day at noon the Montgomery Auction Commission Company have their regular monthly sale. The offering consists of 3,236 packages, viz.: 232 packages Moyune; 10 half-chests Pingsuey; 118 half-chests Japan—basket-fired and sun-dried, new crop, seasons 1898-99; 30 half-chests Japan dust; 484 packages Congou—including new seasons; 131 packages India, Java and Ceylon Pekoe—including new crop; 2,231 half-chests and boxes Formosa—including invoices of new crop, seasons 1898-99.

At the auction on October 26, the small lots of greens sold at an advance of about 1c. The Amoys grading good common to fair averaged 16.54c; old crop Formosa grading good to superior, and which included tea several years old, was irregular. The average shows an advance of fully 1c. The quotations established were: Fine, 24 @ 25c; superior, 22 @ 23c; good, 22 @ 22½c; fair, 21½ @ 22c. New crop Formosa advanced ½c. One line 610 bags good to superior averaged 14·47c in bond.

PEPPER.

Black.—An active speculative demand has been experienced, and value is dearer. A large business has been done (350 to 400 tons in all), including Singapore on the spot up to 4 1 3/16d, near at hand shipments at 4 1 3/16d, January-March at 5 3/32d, and February-April at 5⅛d per lb.

The shipments of Black Pepper for the first half of November compare as follows:—

	1898.	1897.
U.K.—Singapore..... 80	80	200 220
„ Penang..... *nil*		20
Continent.....	20	270
United States.....	60	120
Total tons ...	160	610

At Wednesday's auctions, of 50 bags Singapore 20 bags greyish sold at 4⅝d, prompt 14 days. 12 bags Penang bought in at 4½d, and 560 ba Tellicherry at 4¾d to 5d per lb.

White is in good demand and dearer. Singapore of fair quality h been sold on the spot at 7⅞d to 8⅛d, and fair Penang at 7⅜d to 7 9/16d. F arrival, sales of Singapore January-March shipment have been made 8 5/16d, Penang October-December at 7½d, November-January at 7⅝ January-March at 7⅞d, and February-April at 7⅞d per lb. Sales 150 ton

The shipments of White Pepper for the first half of November compa as follows:—

	1898.	1897.
U.K.—Singapore... 110	240	60 110
„ Penang..... 130		50
Continent	50	30
Total tons.....	290	140

At public sale on the 16th ult. of 17 cases 502 bags Singapore 17 cas 65 bags sold, fine bold 9½d, fine small 8⅝d, good dullish 8d to 8⅛d, ve dull 7¾d; of 81 bags Penang 10 bags realised 7½d; 123 bags Siam retir at 8¼d per lb.

18th Nov.—Black, steady, quiet. Sales of 50 tons including a parc landing at 1/32d over 4¾d, and January-March shipment at 5 1/32d.

A Wynaad Pepper estate's production (about 20 tons) has been sold 4⅞d per lb. landed terms.

White also quiet. Sales of fair Penang on the spot at 7½d, and Januar March shipment at 7 13/16d.

GINGER.

Cochin.—All the fire has gone from the demand, and at auction of 2 cases 470 bags catalogued only 6 cases small cut and scraped sold at 3 6d per cwt.

COCOA.

This market is flat; no auctions were held on 17th ult., but privately good business had been done at lower prices.

We quote—Trinidad, middling to fine red 76s to 78s 6d, gray and mix red 75s to 76s; Guayaquil, Caraquez 79s 6d to 81s. 6d, Arriba 81s to 8 Ceylon, middling to fine 73s to 79s. Stock 108,313 bags, against 100,4 bags last year.

PLANTING OPINION.

A WEEKLY JOURNAL

WRITTEN BY PLANTERS FOR PLANTERS.

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SUBSCRIPTION.—Advance Rates: Yearly, Fifteen Rupees; Half-yearly, Eight Rupees; Quarterly, Five Rupees, and Monthly, Two Rupees, including postage. Single Copies, Eight Annas.

ADVERTISEMENTS.—The charge for line advertisements is 4 as. per line for the first, 3 as. for the second, and 2 as. for the third and succeeding insertions. Five-line (or shorter) advertisements from Subscribers will be inserted for three issues for one rupee; non-Subscribers will be charged two rupees.

DOMESTIC OCCURRENCE.—The fee for inserting a domestic occurrence will be *One Rupee* for each insertion, payable in advance.

N. B.—Remittances should be sent to E. C. Duft & Co., Proprietors, "Planting Opinion," 16/17, Armenian Street, Madras.

SEASON REPORTS.

TO OUR SEASON REPORTERS.

Please post your next reports to reach Madras on Friday, the 23rd December, 1898.

Season Reports should be sent to the Printers, Messrs. Addison & Co., direct, and not to *Planting Opinion* Office.

Coorg.

Polli Betta, 15*th Dec.*—*Weather.*—Fine, chill at nights. East wind sometimes. *Crop.*—Getting riper. Contract picking will be on shortly. *Plant-diseases.*—Coffee in good condition except where heavily laden, which is leafless and will probably not ripen. *General Health.*—Continues fair.

COFFEE AND CO-OPERATIVE AGENCY.

In our last issue we drew special attention to the recent proceedings of the Committee of the Shevaroy Planters' Association, when a resolution was passed that it was time for producers of Coffee to bind themselves together in the form of a Co-operative Association to promote the sale of Coffee direct to the consumer, and that the matter should be brought to the notice of every Planters' Association in Southern India by the Secretary of the U. P. A. S. I. We are glad to see that our contemporary, the *Madras Mail*, has commented on this suggestion in a spirit of friendly criticism. It is impossible not to see the force of our contemporary's remark that the suggestion, vague through it is, merely touches the fringe of a very important question, and that co-operation in regard to the development of demand would be insufficient unless accompanied by co-operation for the improvement of quality and the reduction of cost to a minimum. It is, in fact, in these latter directions that South Indian coffee-planters would seem to have the best chance of success. In the ocean of Coffee consumption their product is but a drop. Efforts to push the sale would probably stimulate rivalry, and other coffees would be as vigorously pushed as Indian. It is very questionable whether the consumer could ever be induced to distinguish Indian coffee from other sorts, and to "see

that he gets it." The expense of the project would be considerable, the fruits of doubtful value; and we venture to question whether there is sufficient enterprise among our planting friends to assure the success of any such attempt as has been suggested. Money would be required; would it be forthcoming in sufficiently large amounts? The Shevaroy Planters' Association gives no hint as to the amount probably required, but all who know the cost of special efforts to cater for the retail trade and to appeal direct to the consumer in England will be aware that a lakh of rupees would not go far towards the carrying out of a scheme such as the Shevaroy Planters' Association would appear to have in view. It will be interesting to see whether the money part of the question is taken up promptly, and if any considerable amount is subscribed as an earnest that coffee-planters really mean to try to improve the position of their product.

There is, we think, grave reason to doubt the efficacy of any half measures or, indeed, of any enterprise on a small scale. At the present moment, in connection with the subject of the classification of coffee, a suggestion is under consideration that coffee curers in Southern India should be requested to adopt, as far as possible, a uniform mesh so that the "A" coffee of one curer may be as nearly as possible the same as that of another; and so on as regards "B" coffee, &c. It is anticipated that there may be difficulty about this, not merely because the shape and size of the coffee bean vary in different districts, but also because curers, or some of them, may not be willing to change their present standards. Co-operation might effect something in this direction. It might even direct its attention to the improvement of curing methods and the reduction of cost. That there is room for the latter no coffee-planter doubts, we fancy; that there is also room for the former is certain, if, as we understand to be the case, Costa Rica coffee is far superior to Indian in cleaning and curing. Then again, some years ago Baron VON ROSENBERG, in suggesting the establishment of a Planters' Bank, touched upon another disability of the Indian coffee planter, the impossibility of borrowing money whenever required on favourable terms. Co-operation might do something to remove this. The *Madras Mail* has mentioned the Coast Agent, and while we say nothing against this class we may suggest that co-operation such as has been proposed might include some new arrangement for the conveyance of coffee from estate to market. It will be found, we think, that co-operation in regard to retail sales will be useless, unless accompanied by co-operation with respect to the improvement of strains and methods of cultivation, the labour question, curing, freights, &c. In fact, co-operation must, so to speak, commence with the seed and finish in the cup. It must attend every stage of the transit of coffee from seed to cup, and must particularly guard against waste and extravagance all along the line.

The magnitude of a scheme that should embrace all this is perhaps of a character to deter the boldest among our readers from giving support to the suggestion of the Shevaroy Planters' Association, but this should not be. There is no reason why all that is here hinted at should be attempted simultaneously. Our own feeling is, however, that the resolution now referred to points to a beginning at the wrong end. We would begin on the estate and end in the consumer's house. From first to last Indian coffee should be watched. Bring the cost down a minimum, and the quality up to the highest possible lev These are the first essentials, and every advance ma towards success here will simplify the attempt to tickle t palate of the consumer. A really good article at a f price will find a market at all times; and later attemp could be made to dispense with the aid of middlemen a to cheapen, first the cost of transit from estate to mark and next, the cost of sale as between the mercha consignee and the retail trader and consumer. The obj of the resolution under consideration is admirable, and trust to see it carried out in the long run; but we certai think that eventual success will be made more sure Co-operation sketches out its proposed progress step by st *beginning at the estate.* To dispense with the Lond broker is in itself a very big proposal, though not impracticable one. It is one that South Indian Coff planters scarcely appear to be in a position to attempt j yet. However, we hope that one outcome of the Shevar Planters' Association's suggestion will be a discussion ways and means, and that before long there may be definitely formulated plan submitted.

MR. CAMERON IN COORG.

UNFORTUNATELY, we are unable to give a report of t two lectures lately delivered by Mr. John Cameron, Mercara and Pollibetta. Mr. Cameron visited Coorg the interests of Coffee. His services were kindly le for a time by the Mysore Government, so that he mig conduct certain experiments and make investigations Coorg with a view to the improvement of Coffee cultivati and the prevention of leaf-disease. He proceeded to Coo last month, and spent nearly three weeks there, visiti various coffee estates, and also having a look at the T plantation that is now there in the experimental stage. Duri his tour Mr. Cameron lectured to appreciative audienc and from the line taken we judge that his remarks mu have been rich in interest. He opened his second lecture, f instance, with his first impressions of Coorg coffee-planti as an industry. The fact that Coffee, generally speaking, looking uncommonly well would naturally have an influen on his opinion. He then referred to the conditions of plan generally, pointing out what effects change in them: du tion, cultivation, climate, fertilisation, grafting, budding, & Endemic plants are often seedless. Again, new forms a constantly arising, something like 10,000 being found Europe during this century. Touching next upon t varieties of the Coffee plant, Mr. Cameron passed to t interesting subject of sexual conditions,—those found nature and those that may be effected artificially. T object of artificial assistance is, as he observed, to obta vigour, size, shape, colour, hardihood, and fertility. T means are crossing and hybridising. Reciprocal cross are seldom possible, said Mr. Cameron. He touched up the question of reversion to the original type, and dilat upon selection of seed, and the best means of bringing abo the desired results, to achieve which requires intelligenc watchfulness and industry. While selection of seed is the utmost importance, cultivation and experiment are al needed, and Mr. Cameron included tilling, manuring, sha ing, draining and pruning within the scope of his remark Pests were also discussed, and the lecturer appropriate

closed by alluding to new products, mentioning specially Camphor, Vanilla, China grass (*Rhea*), Rubber trees, *Cryptostegia grandiflora*, Nutmeg, Florida velvet beans, and Tea. If at any time in the course of his lecture he failed to command the interest of his hearers, it was here; for the Coffee-planter is, as a rule, not keen upon new products. He is a loyal subject of King Coffee, even though at times he may vent his rebellious feelings by saying that this is an unjust and oppressive monarch. He is above all things loyal, and, despite a little coquetting with Queen Tea, Coorg is still one of the lands of the leal.

COFFEE HYBRIDS.

A CURIOUS article on "Hybrid Coffee in South India" has found its way into the columns of our contemporary the *Planter*. The writer's style of discussing his subject may be shown by a couple of extracts side by side:—

From information received, we gather that an opinion is held in some quarters that the inferences to be drawn from the *Mail* articles were too optimistic, and were therefore calculated to furnish a rosy prospect for investors which all the facts available do not justify.

At the recent Conference of the U.P.A.S.I., in Bangalore, though it transpired that Liberian Arabica (or Coorg) hybrid coffee, had been most carefully cultivated and propagated in North Mysore, neither the owners nor managers had been able to quote any returns of the yield from such hybrid coffee, which are in any way comparable with the figures published by the *Madras Mail*, the reasonable assumption following that the fertility of the Mysore hybrid does not approach that of the original hybrid trees in the Wynaad.

And though, from evidence adduced, it is shown that the Mysore Liberian Arabian hybrid coffee is "immune" from "leaf disease," and has hitherto proved to be exempt from "scale pests," there is absolutely nothing to indicate that the market value of the produce which may be shipped to London from such hybrid coffee, will touch a higher price than the highest Liberian is quoted at now, or about £35 per ton.

With regard to the probable value of hybrid coffee in the London market, while admitting that up to the present time we are without much reliable information on the subject, we believe that the hybrid berry will realise an infinitely higher price than the best Liberian; and from the fact that the character of the bean alters in a very marked degree with each successive generation of plants grown from the seed of (1) the original hybrid tree, (2) from the produce of the second generation, and (3) from the seed off the latter, both as regards shape, size and colour, and that these changes in the bean will bring the latter more "into line" with Arabica and the Coorg varieties of coffee.

There can be no doubt that some of the good original hybrid trees in the Wynaad have, during the past three seasons, suffered from "Black Bug," but, while this is an undesirable feature, we would point out that, so far as we are aware, the succeeding generations of hybrids in Wynaad have hitherto escaped the blight *in toto*, or have had it in much milder form.

We are therefore disposed to regard the future of good hybrid coffee in South India as distinctly hopeful and encouraging—provided that the extension of such cultivation is carefully conducted on the lines laid down in the *Mail's* articles.

Reading down the left-hand side, we fancy the writer thinks the *Madras Mail* took an optimistic view of the subject; but as soon as we pass on to the right-hand side we find that the writer means to support the *Mail's* remarks through thick and thin! Then comes what is probably the heart of what the writer wished to say:—

"We should strongly advocate experiments being carried out with a view to the production of a hybrid tree with C. Liberica as the seed bearer and with Waragogipe [*sic*] coffee performing the functions of the male parent."

The writer says that while Maragogipe coffee grown at elevations of and below 3,500 feet appears to be more or less prone to attacks of leaf disease, above that altitude it seems to be much less susceptible to the blight and to bear heavily, and that there are grounds, moreover, for the belief that Maragogipe coffee would command a much higher price in the London market than even P. B. Arabica. He would therefore commend his suggestion to Mr. J. Cameron, and to Messrs. Brook-Mockett, Graham Anderson, and H. G. Parsons, of Mysore and Coorg, and Mr. R. Lamb, of Wynaad. No doubt the experiment is worth trying—indeed we believe it is being tried already,—but one important point should not be overlooked, and this is that, after all, Maragogipe is merely a variety of Arabica. How far, therefore, a cross between Liberian and Maragogipe would prove superior to a cross between Liberian and ordinary Arabica in immunity from disease remains to be determined by practical experiment. Surmises and assumptions in regard to matters of this kind are not admissible.

TEA IN THE UNITED STATES.

IT is interesting to note the remarks of two trade papers on this subject, the one dealing with the Tea *trade* in the United States, the other with the infantile Tea *industry* in that country. The former, an English paper, the *Grocer*, comments on the visit of Mr. Alfred H. Ayden, of Messrs. Whittall and Co., London and Colombo, to the States, and says that he spent three weeks in the United States and Canada in the interest of Ceylon tea, which he firmly believes has a promising future. He went as far west as Chicago, which city he regards as the greatest commercial city of America. He visited the stock yards and witnessed the operation of "pig sticking," and careth not to witness the interesting slaughter a second time. He finds Ceylon and Indian tea for sale wherever he goes. The Americans use it largely for blending. Their taste calls for a light liquor and flavoury tea. Heavy-bodied sweetish tea such as England and Australia demand is not wanted. He carried away large orders, mostly for tea of a special character. He notes an increasing demand for the better grades of Ceylon. He visited the principal cities in Canada, and seems to have made a favourable impression wherever he went. And to these statements we may just add another that appears in the same paper, describing a Philadelphian establishment in which there "is a magnificent array of showcases surrounding an oblong space spanned by a triple arch, decorated with palms and ferns, and on which are the signs—Acker's Ceylon-Indian Tea; Coffee, Tea, and Cocoa Booth; Acker's Ceylon Blend Tea. Urns are kept heated, and visitors treated to a cup of tea. This feature is mentioned as indicative of the interest taken in British-grown tea, which a few years ago was not looked upon with favour.

Turning to the *American Grocer*, we find therein a timely counterblast to the mildly hysterical optimism of the Charleston *News and Courier*, which has been predicting a successful growth of "commercial tea" in South Carolina. The *American Grocer* first runs over the past history of the industry, pointing out how the industry began some years before the Civil War, when the tea plant was grown successfully in South Carolina, Georgia, and Louisiana. It was claimed at that time that one planter in Georgia obtained 440 pounds of tea from one acre of land. Nearly twenty years ago such eminent tea firms as A. A. Low and Brother and Beebe & Brother commended samples of leaf produced in South Carolina, and expressed the opinion if

the cost of production could be brought within that proper limits that leaf might be made which would compete successfully with the Japan product. Everything turns on that little "if," however. On the "Rose Garden" in South Carolina the crop of 1898 was secured at an actual cost of 27½ cents per pound, exclusive of interest on the capital invested and maintenance of the tea garden. The experimental plot returns a yield on the basis of 400 pounds to the acre. In Ceylon as high as 1,100 pounds to the acre has been obtained as the maximum production, while for high estates the average is from 300 to 450 pounds per acre. Our American contemporary then proceeds:—"There are now about 840,000 acres planted with tea in India and Ceylon, against a small patch of a garden in South Carolina. Already the production is so great that planters have been warned that the time has come for suspending further planting operations until it is seen what is to become of the additional crop (say 50,000,000 pounds at least) which the young tea is capable of producing." The average return to the tea planters of India and Ceylon last season was about 17 cents per pound—a price so low that it checked the dividend-paying power of many estates. Summing up, the American journal remarks:—"If in a tropical country, with a soil and climate peculiarly adapted to tea, with labour so abundant that plantation workers receive from 5 to 7 cents per day, it is difficult to make tea-growing a paying business, what encouragement is there for an American tea industry? The question of labour alone makes it impossible for this country to develop a tea industry, even though it were protected by a duty double that exacted by the present tariff." It is conceded that there is a belt of territory in America in which tea will grow and thrive; but the conclusion arrived at is that not until the tea estates of China, Japan, India, and Ceylon are destroyed is there a ghost of a chance to make tea-growing a successful commercial venture in the United States. Land is too expensive, labour too scarce and high, to say nothing of a total present production so far in excess of requirements that the price is continually falling.

ADULTERATED PEPPER.

"GREAT wits jump together." Quite recently, a Birmingham grocer called attention at a meeting of the local Grocers' Association to his experiences with regard to the adulteration of pepper. He said he always bought genuine pepper—at least so far as he could do that. He obtained it from a first-class London house. Recently he had in a consignment, for which he paid 1*s.* per lb., and it looked like a splendid sample, but when he tested it he concluded that it could not be genuine. He called in an expert traveller, who said it was genuine pepper as the trade understood it but it had been put through a bleaching process—through a kiln where sulphur had been used—which was a recognised rule with some London makers to make bad pepper into good. He did not consider such pepper as genuine, and thought the matter was one which should be brought before the Federation. And at much the same time as he was speaking and promising to submit a sample of the stuff he referred to, the *American Grocer* commented on one of the reports of the Ohio Food Commission, in which is a list giving the ingredients of fifteen samples of pepper analyzed by the chemist of the Depar ment. It was found that, notwithstanding the low cost pure pepper, grinders used roasted cocoanut shells, grou rice, turmeric, rice hulls, some product of wheat, cayen pepper, buckweat, hulls, and pepper dust, while so contained only a small percentage of true pepper. England the *Produce Market Review* has for years fought exposure the adulteration of this favourite spice. In recent number it states that the pending prosecutio naturally direct attention to the chemical constitution pepper, a subject in one way well known, but in anoth hardly examined as yet. The active properties of the spi depend upon the presence of an acrid resin, a volatile o and crystallizable substance called piperine or piperin. T latter is said to have no colour, flavour, or smell, and consist of piperic acid and a liquid colourless alkaloid kno as piperdin, which boils at 106 degrees C., and then sme of pepper and ammonia. The resin is very acrid, and t oil has the smell and taste of pepper. The physical stru ture of the corn is extremely complicated, and its cellul composition seems to have been carefully studied under t microscope. With all this detailed knowledge it appea as our American contemporary points out, to be wanting practical application. What is wanted from scientific m is a guide to what constitutes the intrinsic value of pepp Is it the resin, the oil, or the piperin; or must all three taken together, and, if so, in what proportions? Again it observed a very important practical question is, whether t various valuable constituents are equally diffused perpen cularly through the whole of the corns, or whether they a to be found separately into the various horizontal colour layers, from the black rind to the innermost white cent The local arrangement of the constituents is of great a increasing importance, from the immense amount of c cortication and sifting that now goes on in the search, n for the best or most pungent, but for the whitest pepp The *A. G.* adds that it is certainly the distinct impressi of those best acquainted with the trade that the whiter t pepper the worse it is as a spice. Of course, if the pub prefer a nearly flavourless white flour to a pungent da pepper, they get what they ask for, especially as the white powders, when honestly produced, are extreme expensive, and fetch a high and consequently relative profitable price. But given a taste for white flavourle pepper, it can be dishonestly or fraudulently satisfied wit out going to any great expense.

And now comes a sketch of the systems of adulterati practised, which runs as follows:—"The adulterator f years has found ground rice a cheap and harmless comm dity to vamp off as pepper, but that is a substan which the analyst can readily enough detect. The refu shavings in making buttons from white bone or earth nu would certainly not have been a substance which the c dinary mind would have selected for adulterating pepp but finely ground up it appears to yield an opening f fraud on a large scale. Sam Weller's story of the sausag maker who mysteriously disappeared, and whose sad e was only traced after a lapse of time through the wid coming across one of the deceased's trouser buttons in h sausage, however, suggests an analogous test. It appea that the analyst can detect the button refuse in pepper incineration, because the ash is so suggestively large Lastly, a suggestive observation:—"There is a mysterio

demand for empty walnut shells, in some quarters supposed to be devoted to spice-grinding. Whether they turn into pepper or into nutmegs, or mace, cassia, cinnamon, or what not, would be an interesting subject for enquiry."

In view of the expected increase in demand for West Coast pepper, this subject is worthy of the attention of our Malabar friends.

BETTER LATE THAN NEVER.

THE CURRENCY COMMITTEE.

THE HON. MR. H. P. HODGSON called upon us a few days ago, on his return from England, and it is owing to his kindness that we are able to give at this very late date the analyses of the evidence of Mr. Stephen Ralli and Sir Frank Forbes Adam before the Indian Currency Committee. It will be seen how steadfast Mr. Ralli is and how entirely he shares the planters' view of the Currency question. As for Sir Frank Forbes Adam, the most remarkable feature of his evidence is the reference to the *volte face* of the Manchester School. We are glad to learn from Mr. Hodgson that the views of Indian and Ceylon planters are really much more appreciated than they have ever been before. It by no means follows that much will be done to meet the planters' wishes, yet it is satisfactory to know that the small band that started the campaign against closed mints has now grown into a large and formidable one, and includes "strong" men such as those whose evidence is referred to below.

Mr. Stephen Augustus Ralli

Is a member of the firm of Messrs. Ralli Brothers, which was established in 1851, and carries on a large import and export business with India. The capital of the firm was placed on a sterling basis in 1873. The firm was opposed in 1893 to the closing of the mints; some members of the firm are now in favour of the policy of the Government: witness does not share this view.

Effects of a low exchange.—Low exchange encourages production and stimulates the export trade, because it enables the producer to get a better price for his produce. It causes an increase in the amount of exports required to meet the gold obligations of India. It increases the rupee price of imports, but also increases the purchasing power of the people. It enables India to compete with other countries which are at a higher stage of development. The chief advantage of a fall in exchange goes to the producer. Agricultural wages have risen to some extent, while exchange has been falling. A fall in exchange is of no advantage to the merchant. Low exchange gives a profit on wages. Cheap labour, India's only advantage in competition.

Effects of a high exchange.—High exchange places India at a disadvantage in competing with China and Japan. High exchange has injured the tea trade. High exchange is practically a tax on industry. High exchange tends to check the extension of cultivation. High exchange has checked exports from India. High exchange, together with high rates of discount, tends to destroy a favourable balance of trade, and to make it difficult for India to pay her foreign debt.

Effects of instability of exchange.—Instability of exchange has not prevented the flow of capital to India. Does not interfere with trade. A stable rate of exchange is impossible in India. Currency was not redundant in 1893.

Effects of the closing of the mints.—The currency is now insufficient for the requirements of trade. Messrs. Ralli Brothers have been able to secure sufficient currency to enable them to carry on their transactions. A crisis has been caused in India. Dissatisfaction in India. Want of confidence as to the future value of the rupee. Deterioration of the credit of the Government of India, as shown by the price of the India 2½ per cent. sterling loans. Illicit coinage. Evils of an artificial currency. If the currency policy of the Government is maintained, a very severe crisis will ensue.

Proposals for the introduction of a gold standard.—Witness is not opposed to a gold standard for India, if it were practicable, and if the rupee were rated sufficiently low; but a cold currency is not suitable for India, and a gold standard would break down. The best method of introducing a gold standard, if it were practicable, would be to make the rupee convertible into gold, and to establish a large gold fund in India for the purpose. Contraction of the rupee currency, as proposed by Government of India, would intensify existing difficulties.

Future currency policy.—Witness is in favour of the re-opening of the mints by a gradual process, and is confident that that policy will eventually be adopted. As a first step towards the re-opening of the mints the Government of India should undertake to issue rupees in exchange for gold, at 1*s.* 2*d.* the rupee, instead of at the existing rate of 1*s.* 4*d.* The existing rate of 1*s.* 4*d.* has been prejudicial to Indian trade. The existing rate of 1*s.* 4*d.* is less favourable to gold than the bazaar rate.

Probable effects of re-opening the mints.—Exchange would probably fall to 12½*d.* The cost of production of silver would prevent exchange from falling below a certain point. The ratio between gold and silver that has been adopted in Japan would not affect the exchange value of the rupee if the Indian mints were re-opened.

Loss to Government through re-opening the mints.—If the mints were re-opened, the exchange would fall, and the loss to Government should be made up by the increase of existing taxation or the imposition of new taxes. The import duties might be trebled and the countervailing excise duties proportionately increased. Export duties might be imposed, but not on tea.

Sir Frank Forbes Adam, C.I.E.,

Is an exporter of Manchester goods to India. Represents Manchester Chamber of Commerce, who objected to a gold standard for India and advocate a temporizing policy with regard to re-opening mints. Was opposed to closing of mints in 1893. Witness would re-open mints as soon as possible. Re-opening mints. Criticism of Mr. Raphael's scheme for. Import duties. Change in Lancashire opinion on. No great withdrawal of capital from India before 1893. Present system threatens prosperity of India. Discount rates in India, stringency now more prolonged and will become more acute. Stringency is caused by closing mints. Stringency due to want of currency, not of loanable capital. Indian Government's proposals, objections to. Mr. Lindsay's proposals, objections to. Exchange, reasons for present high. With falling exchange, 1873—93, India prospered. Gradual fall of rupee to 6*d.*, no fear to face. Fluctuating exchange unimportant but inconvenient. Low exchange stimulates exports. Falling exchange only partially reduces gold prices. Increase in rupee-prices of produce goes mainly to the cultivator, not to the middleman, &c. Wages follow prices slowly. Council bills do not create exports. Imports depend upon exports. Currency scarce in India. Gold standard sound in principle, but impracticable for India. Exports of gold. Silver-using countries, competition of. China, development of. Government finance, economy and additional taxation needed. Increased taxation, question of. Salt-tax difficulties in increasing.

Much of the above is merely of the character of an index, but it at least serves to show the lines along which the evidence proceeded.

PRIZE ESSAYS.

WE beg to remind our readers that a prize of Rupees one hundred will be awarded to the writer in any planting district in Southern India of the best essay on :—

THE LABOUR QUESTION.

THE PAST, PRESENT AND FUTURE SUPPLY OF LABOUR IN THE..... DISTRICT.

The following are the rules of the competition :—

1. Write on one side of the paper only.
2. Give your name in full, and state address (not for publication, except in the case of the winner).
3. Be as brief and concise as possible.
4. Cite your authorities where possible.
5. Mark your MSS., "Prize Essay Competition."
6. Submit not later than 14th January, 1899 (in Madras).

It should be clearly noted that all essays sent in will be the absolute property of *Planting Opinion*, and that the proprietors will have the right to publish them, in full or abridged or revised, in *Planting Opinion* or elsewhere, and to republish in pamphlet or book form. No limit of length is fixed, but brevity is strongly urged, and diffuseness will greatly prejudice an essay's chance of being a prize-winner. Every competitor should strive to be *accurate* and *concise*. Rupees one hundred will be remitted to the winner immediately after publication of the prize essay.

NOTES.

The Tea Duty in New South Wales. It is announced that this has been reduced to 1*d*. per lb.

The Calcutta Tea Sales. At the sales on 8th instant, about 15,000 packages were sold. The market was firm, and there was a strong demand for teas for price.

Tea in Foreign Lands. We would call special attention to the figures given in Messrs. Gow, Wilson and Stanton's report of 25th ultimo to show the expansion of outside markets for British-grown teas.

A Tea Duty for Canada. The *Ottawa* correspondent of the *Times* states that it is expected that a duty of five cents per lb. will be imposed on Tea next session. As the 25 per cent. preferential tariff applies to British Indian products, Indian Tea will gain by this move.

Ladybirds. The Government Entomologist, Victoria, has imported from Western Australia certain ladybirds that are said to be great destroyers of scale and other noxious insects. Small parcels of the *coccinellidæ* have been distributed over the colony.

A New Tea Company in Ceylon. The well-known Bambrakelle Estate and the other properties of Messrs. Wiggins Bro. and G. W. Goodeve have been made over to a limited company with a capital of Rs.12,00,000.

"Mild" Coffee. This, in New York, appears to mean coffee of a very inferior description, of which a large proportion is beans that are practically rotten. We are glad to see that a little bit of a movement in favour of pure coffee has been set going, and we hope to see it make rapid progress.

Coffee in Congo Free State. The last private advices received from the Congo Free State report that the work on the new railway from Bousa to the Chilongo River has been commenced. Extensive plantations for the cultivation of coffee, cocoa, and tobacco are being mapped out in the Mayombe district, through which the railway will pass.

The Coolgardie Exhibition. The Kelani Valley Planters' Association does not seem inclined to trouble itself much about this Exhibition. One speaker said that Coolgardie is not what it was, and when told that the consumption of Tea in Weste Australia has been estimated at 9 lb. a head, he retorted "But that was in the year 1897. There is nobody there now

"Kolingi." *Indian Gardening* states th the *Tephrosiæ* are leguminc plants, closely allied to the Indigo. The *Tephrosia purpur* the "Kolingi" of Southern India, is a most valual medicinal plant with the natives of India, and our conte porary thanks that seeds of it could be had in the baza The Indigo plant, ploughed into the soil, is said to fertil it wonderfully.

Gainers by Exchange. Writing in *Capital*, a gentlem who modestly signs himself "J spots the gainer by Exchange. It is the Coolie. "T good time" for this atom of humanity is, says "J," wh "the sahib is getting lots of rupees for his tea and indig the intrinsic value of the rupee in relation to gold is not ing and carries no weight with it, only as regards t European staff."

The Lantana Bug in Ceylon. An Uva writer says the lanta bug is said to be flourishing Judge's Hill, Badulla—import from the Peradeniya Gardens, it is reported! As remarks: "It would not take long to spread through t province; and if there is trouble in its track, it will be po comfort to know that the Principality has to thank t Royal Botanical Gardens for the gift of the blight."

Cardamoms. We take the following from th *London Commercial Record* of 25 ultimo:—Cardamoms have for some time past only enjoy a good demand from that portion of the trade using fi sorts, whereas ordinary descriptions have been sad neglected. The Ceylon crop seems to be a good one quan tatively speaking, and the Tellicherry one, we hear, promis to turn out a fair one, both as regards quantity and qualit

The London Tea Market. Telegraphing to Colombo 8th instant, Messrs. Gow, Wils and Stanton reported a steady market, and quoted fair liquoring Ceylon Pekoe Souchong 6½*d*., average of Ceyl Tea for the week 8¼*d*.—the same figures as in the previo week. Reuter reported on the same day that 15,000 pac ages Ceylon Tea had been sold out of 16,000 offered a also quoted no change in prices. The average of Indi Tea was, however, 7⅞*d*., showing a fall of ⅜*d*. Out 47,000 packages offered, 40,000 were sold.

Crop Estimates. Mr. Chas. H. Bagot, of Nuwa Eliya, questions the utility of est mates of the tea crop to the planter, and says:—"Of the har that erroneous estimates have caused we have recently ha

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NOTHING EQUAL TO THESE IN THE CARNATIC
[2-10-98—t.f.o.]

a very practical lesson. These estimates may be valuable to the trader and buyer. Their usefulness to the planter is questionable; and their accuracy more than doubtful—*vide* the case quoted at the Dimbula P. A. meeting, and there are doubtless many such instances." He then asks:—Is there any other commodity, such as coffee, sugar, tobacco, wool, etc., of which the producer publishes yearly estimates for the guidance and benefit of the buyer?

Coffee in Ceylon. A correspondent writes from the Uva district to the *Ceylon Observer*:—The old King Coffee is putting on quite a regal appearance this year at Haputale. Whether it is that the planting of tea through the coffee, where tea was before spurned at, has had any effect, certain it is that the coffee crop this season is remarkably fine—what a wealth of it! Berries clustering everywhere and crowding out each other in all stages of ripeness. "Not expected that the trees will be able to carry it, is what was told me." Is it, he asks, a new version of the song of the dying swan, which was always sweetest with death in sight?

A Planters' Manual! It is not often that a "good story" is told that has a planter for its hero. However, the *Planter* gives one *apropos* of a gentleman who had a craze about manuring. Manures occupied the Manager's thoughts by day and dreams by night. Every article or book written on the subject was eagerly devoured. One day in perusing his paper he saw advertised "The Soil" (La Terre) by Zola, and, thinking it was a treatise on soil generally, sent for it. He was not only surprised but a trifle disgusted to find the opening chapter give a very full and minute detail of other matter. The volume was passed over promptly to the assistant, who, it is thought, was neither surprised nor disgusted.

Indian "Green" Tea. Mr. W. Gow, of Messrs. Gow, Wilson and Stanton, has reported as follows upon a sample of the Hon. Mr. Buckingham's "green" tea:—"There is no tea on this market at all like it, so that it is difficult to arrive at any value; a few chests of this tea might sell at a fair price, perhaps 7*d.* or 8*d.*, but I question much if 100 or 150 chests came on to the market, you would get anything better than 6*d.* It has a pale yellow pungent liquor, and reminds me much of some Japanese green teas I have seen, and which latter is used mostly in America." It seems to us that Calcutta and London reports on this class of tea are valueless. We trust that an *American* report will shortly be forthcoming.

COFFEE SHADE TREE.

Sun-dried Erythrina Lithosperma loppings, &c., contain per ton:—

61·50 lbs. Nitrogen.
57·38 „ Potash.
14·92 „ Lime.
13·68 „ Phosphoric Acid.

Seed cured under Messrs. Sutton and Sons' advice.

Orders should be booked early for the 1898-1899 crop of seed from the parent trees of above analysis at Rs.6 per pound containing about 2,000 seeds. *Germination guaranteed.*

Only thornless variety extant, and is not procurable anywhere save from the

MANAGER, ARIENKOW ESTATE,
Shencottah.

A Boom in Pepper. The *London Commercial Record* observes:—Values in some articles, such as Pepper and Cinnamon Chips, have been driven up with such rapidity that they have inspired intending bull operators with fear; they therefore abstained from coming in, and the pause in the upward movement thus created has induced fortunate speculators to sell their holdings and be satisfied with the profits they had realised. It is, however, generally anticipated that a renewal of the recent boom, particularly in Pepper, will shortly take place, and we are given to understand that a large number of bulls are only awaiting lower prices in order to give fresh support to Pepper.

"The Agricultural Ledger." The two latest numbers are Nos. 14 and 15 of 1898, the former a "Report on the Coal Supply of India," which is a matter of only indirect interest to most planters, the latter dealing with Rhea (Riha) or China-grass. This runs to 129 pages, but as cultivation in Madras (and Mysore) is dealt with in about three pages, we can scarcely think that South India planters take much interest in rhea. Various experiments have been made in the Wynaad and elsewhere, but while experience has been gained, money has been lost. As the *Ledger* says:—"It will be time enough to think of experiments in other parts of India when it has been proved that North Bengal and Assam can produce the fibre at a profitable rate, "for there the most favourable local conditions obtain."

A Tea-maker's Handbook. Mr. G. T. Pett (Ceylon) has a work in the press, divided into four parts. Part No. 1 contains the general duties of all those connected with a factory, and a section is devoted to each, from the tea-maker to the watchman. Part No. 2 is headed "Manufacture," and Mr. Pett goes through all the different processes, from when the leaf enters the factory till the time the tea is sold in London. In these days of low prices, any remarks on how to improve our teas should claim wide attention, and the author gives many useful hints on this subject. Part No. 3 contains a list of all the machines now in use. It goes on to detail their work—how to get the best possible results—and gives simple directions for their general working. Part No. 4 is a mass of useful information for any factory. The care of lamps, belts, &c., is impressed on the tea-maker, and there are many notes about tea requisites.

The S. of I. Planters' Enquiry. The *Madras Mail's* Calcutta correspondent wires:—"I understand that the question of remedying the disabilities of South Indian Planters in connection with their labour supply proves a harder nut than was at first anticipated; and further reference will have to be made to the Secretary of State in connection with it. The Government of India is about to address the Madras Government regarding the introduction of a Bill in the local Council to deal with the subject; but it will probably be years before the Act which will eventually result comes

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[w. 3-12-98—17-12-98.]

into force, for it not only raises the whole question of the powers of arrest in Native States, but difficulty is also caused by the limitations of the breach of contract provisions in the existing Contract Law."

A New Company. The Timber Tea Chests Company, Limited, was registered on Nov. 3 in England with a capital of 8,000*l.* in 1*l.* shares, to carry on the business of timber merchants, dealers in and manufacturers of tea chests, tea wrappers, and other articles used in connection with the import and export of tea; also the business of tea merchants and agents for the sale of veneer tea chests; and to enter into an agreement with the "Ceylon and General Syndicate (Limited)." The first subscribers are:—Alexander J. Rouse, 92, Bouverie-road, Stoke Newington, secretary; Alexander von Koettlitz, 13, Foulis-terrace, Onslow-gardens, S. W., accountant; Guy Owen, 45, Tavistock-square, W.C., merchant; Edward Ames, 52, Lee-terrace, Blackheath, wharfinger; Edward Langley, 41, Montagu-road, Dalston, N.E., secretary; William T. Laurie, 4, Kildare-gardens, W., late tea estate inspector, Ceylon; and F. W. Woodman, 89, Bethune-road, Stamford-hill, N., clerk.

Russia as a Tea-Grower. Serious attempts are now being made, says the St. Petersburg correspondent of the *Financial News*, to introduce in Russia the cultivation of tea, especially in the Caucasus, where, according to official statements, experiments so far made have given very satisfactory results. During the current year about 400 Chinese families have settled down in Southern Russia with the special mission of initiating Russian planters into the secrets of this branch of agriculture. The tea fields are situated in the immediate neighbourhood of the sea, running along the Batoum-Tiflis line. The harvest, on a grand scale, is to begin shortly, with the help of the Chinese, who are kept here by contract, and are already getting accustomed to the climate. At the same time, I may mention the announcement, which I have been unable to verify, that a German syndicate, including well-known capitalists, is about to found colonies in the Crimean regions of Alma, Katscha, and Balbeka, where tea, cotton, and sugar-cane plantations are to be established.

"The Indian Sportsman." The first number of this paper made its appearance in Calcutta on the 3rd instant. It does not propose to enter into competition with its older contemporaries, the *I.P.G.* and the *Asian*, but states that its distinctive feature will be its illustrations, "which will principally comprise phototypes, highly executed, of sportsmen, horses, athletic and polo teams; and snapshots of passing events. The journal will contain further very full discussion of all matters appertaining to the turf; take a keener interest in polo than has yet been done by any other paper; chronicle passing social events in a pleasant chatty way: deal technically and instructively we hope with planting interests, and give athletics and all other branches of sport due attention, and not neglect the stage, as much as we have of it in India." A fairly comprehensive programme. Here's to the success of its framers and those who have to place the pieces on th stage.

LETTERS TO THE EDITOR.

"BOXES" AND "BUSHELS."

SIR,—In reply to "Kartary" in your issue of 10th Decen ber, will he kindly measure, say, 10 struck bushels (*n* boxes) of cherry, pulp it, and give us the outturn of parchmen tails, and light? A box of cherry may mean anything fro 1¼ to 2 bushels, and even more. Every estate, I fancy, has i own pet *box* for measuring cherry. "Kartary's" *box* mu measure nearly 2 *bushels*.

BUSHEL MEASURE.

GENERAL ARTICLES.

DAILY TELEGRAPHIC REPORTS.

LONDON.	*Dec.*	9.	10.	12.	13.	14.	15.
Bar Silver ...		27½	27½	27 7/16	27 7/16	27 7/16	27½
Bank Rate ...		4%	4%	4%	4%	4%	4%
Coffee—		*Flat.*	...	...	...	...	...
Nilgiri, ave. (B) size.		64	...	...	64	...	...
Mysore „ (B) „		75	...	...	75	...	...
Wynaad „ (B) „		63	...	...	...	...	...
Middling Ceylon		103	...	...	103	...	...
Cinchona Bark.							
Monthly Sales Pkgs.		...	...	...	1,600		
NEW YORK.							
Coffee—Fair Rio ...		6⅜	6⅜	6½	6½	6¾	6¾
Futures, Mch.		5.53	5.56	5.60	5.53	5.57	5.57
Silver—Comml. Bars		59¾	59¾	59¾	59¾	59¾	59¾

INDIAN AND CEYLON TEA AND INDIAN EXCHANGE

MR. W. MARTIN LEAKE, Secretary of the Ceylon Association London, writes to *The Financial News* as follows:—"The repo that your representative gives in your paper of 18th inst. of h interview with me is in the main correct; but he is under some litt misapprehension when he describes me, without qualification, 'optimistic as to the future of Indian and Ceylon teas.' It is tru that the increase of shipments to foreign and colonial market during the present year encourages the hope that with a continue increase of production these markets might be captured for British grown teas in the same way as the home market has already bee captured. But unfortunately, in the meantime the unprecedented low rupee price ruling for our teas is making the business unprofi able to the producer, and checking the increase of productio essential for the occupation of the new markets. It is said, I kno that the low prices are due to over-production; but this hypothes will not bear inspection. The fall in the rupee price of tea dat only from 1896. Let us see how far a comparison of the statistic position of tea to-day with that of two years ago bears out the a sumption that the subsequent very serious fall in price has been du to excess of supply over demand. The following figures for th movements in the tea trade in the United Kingdom for the fou months, June to October, 1896 and 1898, are taken from Messrs. Gow Wilson and Stanton's circular of 4th inst.:—

	1896. lb.	1898. lb.	lb.
Imports	...127,812,513	123,704,622	−4,107,891
Deliveries	...105,416,706	110,626,987	+5,210,281
Stocks, Oct. 31	... 88,331,246	80,653,561	−7,677,685

"I may add that in no other country than the United Kingdom ar heavy stocks of tea kept. The matter then stands thus:—We ha

MILLIE & REDMOND, late P. THOMPSON & CO., *Ootacamund, Engineers and Contractors.*

up to 1896, with constantly-increased production and increasing stocks—a steady rupee price. From 1896, while the Indian Government has been successfully forcing up the value of the rupee to 1s. 4d., we have had, in face of a greatly-strengthened statistical position, as shown by the above figures, a sharp and continued fall in that price. It is idle to contend that the fall is due to over-production."

WHEN TO CUT TREES FOR LUMBER.

WITH proper after treatment of the wood, the time of felling does not seem to affect its durability. Winter felling is generally preferable to summer felling because both fungi and insects are then inactive and the timber may be handled more at leisure, both in the woods and during shipment and conversion, and if worked up at once has a chance to season to quite an extent before warm weather awakens its many enemies. Where logging and milling are carried on in a large way and the log is cut into boards and these put through the dry kiln before the fungi and beetles have a chance to attack them, the product of summer felling is as good as that of any winter felled timber.

Where logging is done in a small way the cutting of timber in summer usually involves loss and commonly leads to inferior product. (B. E. Fernow, Circular 20, forestry division U S dept agri.) Peeling standing timber and allowing it to season on the stump is often recommended, but has never found favour in this country. Girdling timber to partially season it is done for cypress, but with indifferent success.

CEYLON TEA IN AMERICA.

THE following interesting letter from Mr. S. Elwood May, dated New York, 29th October, contains some valuable suggestions as to methods to be adopted and to be avoided by those who wish to push Ceylon and Indian Teas in the States. Mr. May writes to the *Ceylon Observer*:—

To the Ceylon Planters. It may be of interest to you to learn the views of an American on the work done here which I shall give to you with malice toward none.

If it were only necessary to win success in Ceylon tea culture in your Island, to have the requisite amount of money to purchase land, clear it, and follow the ideas of an inexperienced individual, then any one with money might set sail for Ceylon with success assured and be independent of the old planters or their experienced co-workers. All your representatives have come to this country feeling that your backing meant assured success, and is all that is necessary.

This is shown by the fact that they ignored everyone who have laboured here for years in British-grown teas.

The stranger here, generally after he has spent his money, sees that there is a concrete mass of combinations to fight. The wholesale merchant whom he has won, under the rose, is working with the people he always has been, and pushing the old article harder than ever. All the large houses here count upon tiring out and using up the funds of newcomers, before they find out that they have a hold of the wrong end of the stick. I have recently travelled over the New England territory, and British-grown tea has the name of an exploited failure. To win success in the introduction of an article, to replace a well-known staple product in this country, is indeed a task, and must be handled from basic principles; the different localities such as the Eastern States, the Southern States, &c., &c., require different treatment, and great experience to get enough of a foothold to have the business go on. Things that move slowly are generally doomed, every one helps to execute them to get them out of the way. It has hurt Ceylon to attach India to it; first it is confusing, second it appears from all the advertising that Ceylon and Indian Tea mixed is the only beverage to use, not Ceylon Tea alone, oh no. It is the most arrant nonsense to say that the way to introduce Ceylon tea is to push India tea also. China and Japan tea, they have been introduced separately and against each other. Having won a place here, the merchants advertise for sale China and Japan Tea. You might as well say that the way to introduce Bass ale is to add Guinness's stout and use Bass & Co's money to do it with. There is a reason for everything, and I know why they are working Ceylon and India together, but the courtesies that obtain among decent-minded people seal my mouth. You will not get this market to any large extent until certain things are done, they have not been done, and while some good has been accomplished, not enough of an impetus has been given to the enterprise to make it lasting. Your money has largely been spent by Englishmen to get experience. If you think they have accumulated enough of it to win success, the thing to do is to go on; if you stop, every thing will pretty much be thrown away. It is not fair to count Canada imports with North America. Canada was won before you spent any money here, and readily yielded to any efforts made owing to your own people being largely there.

THE CEYLON TEA CESS.

THE *Observer* remarks on the proposed increase of the Tea Cess, and says things that will scarcely be palatable to the executive of the Planters' Association. After remarking that there are indications of approval of the proposal of the Thirty Committee upcountry, while in Colombo the sentiment is decidedly the other way, our contemporary proceeds:—

The object for which this voluntary tax exists is the "Advertising of Ceylon Teas in the Markets of the World," and the helping of those who are prepared to work in our interests for the opening out of new centres of tea consumption. This clear and well-defined policy has been departed from in the apportionment of salary for Mr. Kelway-Bamber, and now that it has been seen how easily this Planters' tax can be got at, and to what extent it can grow, the Thirty Committee is expanding also,—and would expand further, if only more money could be got in.

It was a decided mistake—the hitching of Mr. Kelway-Bamber on to the Tea Fund. It broke faith with those who agreed to pay a Tea Cess for advertising purposes, and it introduced a principle which would justify the Thirty Committee in almost any kind of outlay, if but connected with the industry. A new tea chest might be subsidized: a tea-roller financed; or even the man who could show nothing but whose ideas were fertile and whose means were small might be run on the Cess contribution in the hope that the ultimate good would justify the outlay. Mr. Kelway-Bamber's mission is quite desirable, and good will no doubt result from the outlay; but that the expense of the mission should have been a charge on the Tea Fund is a bad move. Not to speak of the breach of faith, the policy was short-sighted. For ever so long there has been a steadily-swelling cry for a Scientific Department of Agriculture to be maintained at public expense, and although the Government is even in these days of big surpluses not very willing to move, still a Commission has been appointed. It is a big sum which has been appropriated locally, but no doubt the planters will get value for it; for the laboratory may have secrets connected with fermentation which will much benefit the teamaker to know; but when the Thirty Committee has thus easily voted away a thousand a year for a scientific advisory expert, and with equal light-heartedness proposes to increase the cess, it is about time that there was a halt called, and a return to first principles.

Besides all this, we are told there are some estates which feel the present Tea Cess a burden. Running so close to the cost of production, everything tells, and to increase any item makes the problem of getting along all the more difficult. The burden at present is weighty enough, and the fund to be distributed sufficient and with a natural growth of its own; it is only the Thirty Committee who feel hampered, and it is perhaps as well it should be, until the trend of its action is less questionable, and it developes a single eye for the pushing of Ceylon Teas in the New Markets of the World.

In conclusion, might not the Government be very well requested to recoup to the Tea Cess Fund all outlay on account of Mr. Kelway-Bamber and to take over his mission and services as specially for the benefit of the industry which has contributed most to the existing General Revenue surpluses exceeding four millions of rupees?

Criticising the above remarks of its contemporary, the *Times of Ceylon* says:—

Much of the foregoing condemns itself. Mr. Bamber's work is much too valuable to be dismissed in the way attempted. When he was appointed, the need for such an enquiry was admitted to be great and immediate; and nothing would have been done if the Thirty Committee had not acted with promptitude. Our contemporary is very belated with its objection; and does not appear to know the difference between the competition of rival tea machinery makers and the investigations of a scientist.

INDIAN TEA.

WHILE the *Pall Mall Gazette* and some other papers despond, the *Grocer* rejoices that its forecast of the market for Indian Tea, published last April, has proved to be correct. It then said that, "Before new Indian Teas will arrive to any appreciable extent, say July or August, the existing heavy stock may be considerably reduced, and this will the more thoroughly prepare the market for the fresh consignments, so that when more suitable supplies appear on offer it is probable that a stronger demand at firmer prices will prevail than has been noticed for any length of time within the last twelve months."

All these changes have, says our contemporary, come about in a remarkable manner. First, it will be noticed that the stock of Indian tea in London, which at the end of March was 59,051,500 lbs., in opposition to 51,289,350 lbs. in 1897, and only 45,729,500 lbs. in 1896, has since then, and by the 31st ult., been reduced to 44,947,000 lbs., against 45,123,000 lbs. and 44,048,700 lbs. in the two preceding years. These figures show a diminution in the quantity on hand of 14,104,500 lbs. in seven months, and an entire disappearance of the cumbrous surplus that weighed the market down in the early part of 1898. At that time the deliveries of the same description of tea at this port, which we next refer to, were of only average amount, being for the first quarter of the year 34,373,350 lbs., against 34,311,850 lbs. and 33,376,100 lbs. in 1897 and 1896. Since then, however, they have made astonishing strides onwards, and for the past ten months have reached the hitherto unmatched total of 112,455,100 lbs., in contrast with 103,672,200 lbs. in the corresponding period last year and 100,527,650 lbs. in 1896.

Here again appears the surprising increase of 8,782,900 lbs. over the delivery of Indian tea in 1897, eclipsing all former records, and confirming, in a striking degree, the "stronger demand" that, so far back as last spring, was looked forward to with well-grounded confidence by both importers and dealers. It should, however, be explained that a portion of the augmentation in the above clearances is due to the larger quantities taken for exportation from the United Kingdom this year, which, as officially returned, have equalled 5,984,850 lbs., as compared with 4,235,750 lbs. in the ten months of 1897, and 2,901,950 lbs. in the previous year. The separate entries of the same kind of tea for home consumption from January 1 to Oct. 31 aggregated 108,506,200 lbs., in lieu of 102,567,350 lbs., and 99,732,160 lbs., respectively, in 1897 and 1896. As we have repeatedly observed in our market reports, the demand has run chiefly upon the common and low medium leafy sorts, from 5¼d. to 8d. per lb., teas "for price" being, more than ever, a prominent feature of the season. At its commencement quotations were at a moderate level, and on comparing them with those for similar grades of Ceylon, it was at once seen that Indian teas offered decidedly better value for money. The latter, therefore, have served as a great boon to the big blenders of packet teas and exporters on continental account, and, inquiries having gone on increasing rather rapidly, subsequent purchases have been made at gradually hardening rates.

In alluding to the size of the present season's crop of Indian tea, we can speak in only general terms, as no detailed statement, giving the yield for each important district under cultivation, has yet been received. The nearest approximation to what the total production is likely to reach is that contained in the "revised" estimates forwarded from Calcutta to the Indian Tea Association (London), which put the aggregate crop for 1898-99 at 154,000,000 lbs., as contrasted with a trifle over 148,000,000 lbs. actually grown in 1896-97 and 1897-98. Of this season's crop it is reckoned that 136,000,000 lbs. will be available for the United Kingdom, which is about 4,000,000 lbs. below what was orginally estimated, a 2,000,000 lbs. more than in 1897. The statistical position of t article, as at present, is thus represented to be more favourable th it was at the beginning of the new season, and the improvement mainly owing to the largely expanded shipments direct from C cutta to "outside countries," such as Australasia, America, Bomb and sundry ports, which from April 1 to September 30 (t latest date named) embraced 8,099,100 lbs. in comparison w 5,204,400 lbs. last year and 5,710,800 lbs. in the year before. these means, and the additional demand from shippers that h arisen here, the home market has been sensibly relieved of accumu ting and excessive stocks, and prices instead of declining have be pointing towards recovery, a tendency which will probably maintained for some time to come.

COFFEE AND CO-OPERATIVE AGENCY.

THE *Madras Mail* remarks that there is food for much thought the Resolution passed by the Committee of the Shevaroys Plan Association at its meeting on the 5th instant. The Committee th resolved "that as prices of coffee have dropped to such a low poi it is, in the opinion of this Association, time that producers of t staple should now bind themselves together in the form of a C operative Association to promote the sale of coffee direct to the co sumer, either in the raw state, roasted berries, or ground coffee; a that all coffee planters in Southern India should be invited to jo by taking shares. That the matter should be brought to the not of every Planters' Association of Southern India by the Secretary the U.P.A.S.I., so that the matter may be fully discussed and plan formulated to start the concern." Our contemporary commen as follows:—

In its way, the suggestion here made is an excellent one, but t Resolution leaves a good deal to the imagination, and, to our mi merely touches the fringe of a very important question. For stance, there will certainly be men to question the practicability any scheme of co-operation such as has been suggested. If t Association had worked out a plan, however roughly, so as to sh something of a practical and practicable kind, other Associatio could have criticised, suggested modifications, and so on; and so definite result would probably have been arrived at in a short tim As it is, there is a somewhat vague suggestion for the various Pla ters' Association to consider. Unless a meeting of delegates arranged, discussions by correspondence may be prolonged, witho any substantial result. For, if we assume that recommendatio will be made, we must also anticipate that they will vary greatly points of detail, if not in regard to first principles. Who is to und take the work of blending the good among the suggestions and d carding the bad or the unworkable? It is, we think, a pity that t Shevaroy planters did not boldly grapple with the problem and su mit a plan for approval or revision. The saving in time would, in probability, have been appreciable, and the chances of a defin result would have been largely increased. The ground covered the Resolution, though in our opinion far from wide enough, is wide that there is room for multitudinous differences of suggesti and opinion on minor points. If each Association that is interest were to formulate a plan of action, it would probably be a Hercule task to reconcile one with the others. If, as is not unlikely, eve Association hesitates to undertake the task, what progress can hoped for?

Reverting to our remark that the ground covered by the Reso tion is not wide enough, we would observe that the Resolution relat solely to co-operation in regard to efforts to increase the demand f and the price of coffee. Now, considering how very small a pla India occupies among the coffee-producing countries of the world, would seem almost as if a mouse of an Archimedean turn of mi were seeking a lever wherewith it might raise an elephant to a high level than that on which it now stands. Is it possible, we may as for Indian coffee-planters by any means to bring about an appreciab increase in the demand for Indian coffee? True, they may dispense wi the broker and start co-operative agencies for the wholesale and ret sale of Indian coffee, and Indian coffee alone. But would this pay The number of merchants and dealers in the United Kingdom—

for that matter in the world—who trade in coffee alone is insignificant. Narrow the scope down to Indian coffee, and you put the establishment upon a virtually unworkable basis. Coffee is usually sold by grocers; and unless the retail co-operative agencies thought of opening regular groceries and sold other provisions in addition to coffee, their chances would be small. True, rivals to "Ye Mecca" might be started, for the sale of Indian-coffee in the cup; but this can scarcely be regarded seriously as a means of increasing demand or consumption. We should have preferred to see not only a definite scheme of co-operation for the purposes of stimulating demand, but a scheme of co-operation in regard to the cultivation and curing of coffee. It is the high cost of Indian coffee that blocks the way of the planter to profit and prosperity. It is there that co-operation is most called for. There are middlemen and middlemen. There is the broker in England who effects a sale and pockets a commission. There is the curer in India who takes something to repay him for his work. The Coast Agent, again, does not give his services free.

Without saying "get rid of those middlemen," one may at least throw out the hint that coffee planters might try to arrange so that the remuneration of the curer and the Coast Agent should be revised, and, if excessive, reduced. Theoretically, no doubt, co-operation is an excellent thing; but even the few remarks here made, mere outlines though they be of the comments that might be made on the Resolution of the Shevaroy Planters' Association, should suffice to show that the practical application of co-operative principles is attended with many difficulties.

SOILS, MANURES, ETC.

THE TAKING OF SAMPLES.

MR. A. BAUR, of the Ceylon Manure Works, Colombo, offers to make Soil Analyses *free of charge*. We are not aware whether this offer applies to planters in India as well as in Ceylon, but on this point we are making inquiries. Mr. Baur has a Chemical Laboratory in charge of Dr. T. Bachofen, Analytical and Agricultural Chemist (Diploma of the Institute of Chemistry of Zürich, Doctor's Degree of the University of Zürich for Special Investigations). We note that Mr. Baur urges that soil samples should be taken to a depth of one foot for annuals and to a depth of three feet for perennials. Doubting if these instructions are sufficiently precise, we give for the information of our readers the following instructions issued by the Queensland Agricultural College with respect not only to Soils, but also to Water, Manures, &c.:—

INSTRUCTIONS FOR TAKING AND COLLECTING OF SAMPLES.

Soils and Subsoils.

To obtain a fair average sample of the soil of a block of land, as near as possible, equal quantities of soil are taken from various parts of the fields.

A sketch plan of the field, paddock, or block of land on which the samples were taken should accompany the samples, and the spots where samples are taken are marked on this plan and numbered. This sketch plan should also indicate position of roads, creeks, gullies, ridges, general fall of the land, &c.

Should the soil in various parts of the block show a very marked difference, it will be necessary to divide the block into two, rarely in more, parts. Should the different soil occur only in a small patch, this sample may be left out.

Not less than three samples should be taken in each section. A greater number is to be preferred, as a better average will be obtained.

At the places chosen for the taking of the samples the surface is slightly scraped with a sharp tool, to remove any surface vegetation which has not as yet become part of the soil.

Vertical holes from 10 to 18 inches square are dug in the ground to a depth of 2 feet 6 inches to 3 feet.

The holes are dug out like post-holes; an earth-auger facilitates the operation considerably, and the holes may be trimmed with the spade afterwards.

Careful note of the appearance of the freshly cut soil and subsoil should be taken. The depth of the real soil, which in most cases is easily distinguished, is also measured and noted for each hole. Note how deep the roots of the surface vegetation reach into the soil. If the soil changes gradually into the subsoil, as is the case in some places where the soil is of very great depth, this line of division is guessed approximately, or it is best to take the soil uniformly to a depth of 12 inches.

With a spade a slice of soil is now cut off and put on to a clean bag. The same is done with the subsoil, and the slice is taken from where the soil ends (or 12 inches) to the bottom of the hole, and this subsoil placed on another bag. Stones over the size of a pea may be picked out, the rough quantity of such stones estimated, and a few enclosed with the samples. Fine roots must not be taken out from the soil samples. The same operation is repeated at the other places chosen. Careful note and description in each hole, as numbered and marked on plan given, and the samples of soil collected on the one bag thoroughly mixed by breaking up any large clods, and about 10 lb. of the mixture put into a clean canvas bag, which is securely tied up and labelled. The same is done with the samples of subsoil collected on the other bag.

All the samples collected are afterwards placed into a wooden box.

It is important to use clean bags and clean boxes, and also that the samples should not be left in the neighbourhood of stables or manure heaps.

A short description of the land must accompany the samples and the sketch plan.

In the case of cultivated land, state how long the land was under cultivation, what crops were chiefly grown, result of such crops, was any manure applied, and what sort and in what quantities per acre. In the case of virgin soil, state if the land was heavily timbered or not, ringbarked, if scrub or forest land, what sort of timber was chiefly growing on the land. In all cases a description of the neighbouring land, outcropping rocks, &c., are of great value. Also state if the land is naturally or artificially drained or not; describe the land as regards its position to hills, roads, creeks, &c.

Only by adhering strictly to these instructions, and by giving minute details, benefit can be derived from the soil analyses.

Water.

It is best to collect and forward samples of water for analysis in stoppered glass bottles, generally known as Winchester quarts.

The bottles have to be perfectly clean, and stoppers must fit well. Corks should be avoided, but if used must be new and well washed with the water before being used for closing the bottle.

When taking waters from taps, pumps, bores, the water has to be allowed to run for a while before taking the sample. When taking the water out of a well, pond, or river, the bottle is completely immersed, but care has to be taken not to disturb the mud or sediment at the bottom of the water. Before the sample is actually collected, the bottle is rinsed three times with the water, filling each time about one-third full. The bottle is then filled within about one inch from the top; the stopper is inserted and securely tied down with a clean piece of linen or calico.

The stopper must not be fastened or luted with sealing-wax, paste, plaster of Paris, &c.

Manures.

When taking samples of artificial manures out of bags, the samples must be taken from different bags and at different places of the bag, and not only from the top, or the bags before being used are emptied on a heap and mixed up well and the sample then taken. About 1 to 2 lb. put into a clean bag should be forwarded for analysis.

Food Stuffs.

It is always important to obtain good average samples, and this can only be done by great care in taking the samples from different places, mixing well, and taking a small part of the mixture. This method would apply to any dry food-stuff, as grains of any kind, peas, beans, chaff, pollard, meal, &c. For the analysis of green foods, as green hay, sorghum, silage, it is best to make a mixture of the sample by passing it through a chaffcutter, and by taking an accurately weighed quantity, say 1 lb. This quantity may then be dried in the sun, taking care that nothing is lost, and when dry put in a bag and forwarded for analysis. The green samples may be forwarded without drying in fruit-preserving jars.

To collect information about value of green manures, it is best to plot out exactly one square yard in the field covered with the plant, not picking out a position where the growth is very heavy or poor, but about a fair average. Four pegs are driven into the ground at the four corners, and string stretched between them; with a sharp

spade all the plants are cut along the strings, so as to get really the growth of one square yard. The plants are all collected and accurately weighed, passed through a chaffcutter, and the sample for analysis taken as above described. In many cases the roots may be also pulled out, weighed separately, and a sample forwarded.

The samples have to be accompanied by a description of the crop when planted, how old when cut, if the land was manured or not, weight of crop per acre or square yard, and weight of the sample forwarded when in its green state. In the case of green manures it is generally best to take the samples at the same time when ploughed under, just after flowering.

NITROGEN AND PLANTS.

The Madras Mail gives the following report of a lecture on "Atmospheric Nitrogen in its Relation to Vegetation" delivered by Dr. W. J. Leather, Agricultural Chemist to the Government of India, at the College of Agriculture, Saidapet, on Tuesday last:—

The lecturer, in introducing the subject, thought it would be as well to set out briefly the reason why it occupied and still occupies an important place in the field of agricultural research. Early in the history of chemistry it was determined that all plants were built up of two distinct classes of substances, one of which became dissipated on heating while the other did not. The composition of the latter, or mineral, portion was only accurately determined later on, but it was readily recognised that the plant must rely entirely on the soil for a supply of its mineral ingredients. Regarding the portion which was dissipated on heating it was discovered last century that this portion consisted of compounds of carbon, hydrogen, oxygen and nitrogen: and it has been known for over half a century that plants obtained the greater portion if not the whole of their carbon and a part of their oxygen from the atmosphere, and that most of the water entered through the root, the supplies of these substances being practically unlimited.

The question was whether plants obtained their nitrogen from the soil or from the free nitrogen of the atmosphere. The first experiment was made in 1779 by Priestly, who, working with primitive apparatus, came to the conclusion that plants assimilated the free nitrogen of the atmosphere. Twenty years later De Saussure, as the result of his experiments, came to the opposite conclusion. In 1837 Boussingault investigated the matter with indecisive results, but he again attacked the subject in a more thorough manner in 1850 and subsequent years. He grew plants from seed in a soil which was capable of supplying the necessary mineral matter, but which did not contain any compound of nitrogen. The whole was enclosed in a large glass sphere, which was occasionally supplied with carbon dioxide, a supply of water being given to the soil. In this way the compounds of nitrogen were as far as possible put out of reach of the plant while the free nitrogen of the atmosphere was in contact with it. His experiments showed that the nitrogen in the plant was practically the same in amount as that originally contained in the seed—in other words that the plant did not assimilate atmospheric nitrogen. These results were subsequently confirmed by other experimenters, notably Lawes, Gilbert and Pugh, of whose apparatus and methods of procedure the lecturer gave a detailed account with the aid of the neccssary appliances.

The question could not be allowed to rest here, for there was a generally expressed opinion among British farmers that clover, in addition to producing excellent crops of hay, enriched the soil for a succeeding crop of wheat or barley, and further that all competent investigators admitted that the question, in spite of the results already mentioned, was not fully solved, while some of the field experiments seemed to confirm the British farmers' opinion. Hellriegel and Wilfarth carried out a series of investigations on the relation which existed between the amount of plant food in the soil and the weight of crop obtained. Plants were grown in sterilised soil in a series of pots having a good supply of plant foods other than nitrogen. In one pot of a series there were no compounds of nitrogen present; in a second pot a small amount of combined nitrogen as sodium nitrate; in a third pot twice as much and so on. It was found that in the case of the *Graminaceæ* and some others that the weight of plants produced depended largely on the amount of combined nitrogen supplied, but that with the *Leguminosæ* the yields varied. Further, the striking fact was demonstrated that pea plants grown in sterilised soil with no supply of combined nitroge in some cases grew luxuriantly, while in other cases their growt was limited to the supply of nitrogen in the seed. The roots of th stunted peas resembled those of other plants, but the other c the luxuriant peas had developed numbers of nodular protuberance The question was, therefore, raised, whether this phenomeno was in any way connected with the action of micro-organisms c microbes. Further experiments showed that the *leguminosa* did not thrive in cultivation pots from which all micro-organ isms were excluded, that these plants developed nodules o their tubercles and thrived well if the cultivation pots wer watered with muddy water obtained by slaking fertile soil wit water, but not if this water was previously sterilised by boiling. Th lecturer then described the experiments in detail and summarise their results as follows:—Plants belonging to the natural order *Graminaceæ, Cruciferæ*, etc., did not assimilate atmospheric nitrogen plants belonging to the sub-order *Papilionaceæ* (order *Leguminosa* assimilated atmospheric mitrogen if certain micro-organisms wer present in the soil. The experiments of Hellriegel and Wilfart have been corroborated by Lawes and Gilbert. The lecturer the proceeded to give in detail the evidence tending to prove that th nodules mentioned were due to inoculation, and said that certai bacteriologists had separated organisms from these nodules. Nobb it appears, has grown these organisms and has placed them on th market in suitable vessels (" Nitragin ") so that soils deficient in th organisms may be supplied with them. Regarding the practic utility of " Nitragin " the information at present available seeme insufficient to base any opinion on the matter. The lecturer incide tally pointed out that some of the lower forms of vegetable life such a *Algæ* and *Lichens* seemed to be capable of assimilating free nitroge which accounted for the phenomenon noticed by some observe that land left apparently bare showed an increase in the amount c nitrogen present. The question " in what way do bacteria assi certain plants in assimilating atmospheric Nitrogen" was answered b Lawes and Gilbert as follows:—" The alternative explanations c the fixation of free nitrogen seem to be:—1st, that under the cond tions of the Symbiosis the plant is unable to fix the free nitrogen c the atmosphere by its leaves; 2nd that the organisms become distribu ted within the soil and there fix nitrogen; the resulting nitrogenou compounds becoming available as a source of nitrogen to the root of the plant; 3rd that the free nitrogen is fixed in the course of th development of the organisms within the nodules, and that th resulting nitrogenous compounds are absorbed and utilised by th host." The third suggestion seemed the most likely one.

Leaving aside the purely scientific aspect of the question, th lecturer said he would like to deal with the practical side of it. I was true that through the agency of pulses the land became enriche to a certain extent for a subsequent cereal crop. But experiment carried out at Cawnpore and elsewhere showed that the root residu of a pulse crop could only be relied upon to increase the cereal whic filled it by about ten per cent., which was very little compared wit the increase which could be obtained by the use of nitrogenou manures. Doubtless the part played by pulse crops in India was a all-important one, but it would be folly to trust to such crops alon to replenish the soil and to neglect the use of cattle dung and othe manures supplying nitrogen to the soil. The soils of India wer very poor in nitrogen; and this left only one conclusion to be drawn namely that, although our pulse crops were annually assimilatin some nitrogen from the atmosphere, the amount so brought int combination with the soil was not sufficient either to increas naturally the store of this all-important plant food, or even to main tain it at a high level.

THE WORLD'S GOLD AND SILVER OUTPUT.

THE Director of the American Mint Bureau, who is looked upo as the leading authority in the computation of the world's output o gold and silver, has issued his Report for the past twelve months.

Last year's gold output throughout the world is valued at £47,500,000 which establishes a record. This compares with £41,200,000 for 1896 £39,860,800 for 1895, £23,769,740 for 1890, which really means tha the world's production of gold has doubled itself in seven years. A is well known, the United States, for the first time in its history, las year ranked second as a gold-producer, having been superseded b the Transvaal. The difference, however, is comparatively very smal

the United States product being figured at 57,363,000 dols., while that of South Africa is put at 58,306,000 dols., of which the Transvaal produced 57,633,000dols. As regards this year's output, the Transvaal will fairly outdistance the United States as a gold producer. The world's production of silver for last year was 183,096,090 oz., which for coining purposes was valued at 236,730,300 dols. Here also a record is established, the next greatest production being shown in the previous year, when 167,500,900 oz. was the total. The United States had an output which was valued at 69,637,200 dols., being a slight decrease on the previous year. The Australasian total was £4,124,840, which was also a slight increase. Bolivia had a production valued at 19,393,900 dols., as compared with 28,444,400 dols. in 1894. The Spanish output was valued at 7,473,300 dols.

RECONSTRUCTION OF A WELL-KNOWN TEA FIRM.

We take the following from a London financial contemporary:—

Dodwell & Co., Ltd., Registered November 11th, with capital £100,000, in £25 shares, to acquire the business carried on by G. B. Dodwell and J. H. Carlill, in the colony of Hong Kong, at Shanghai and Hankow, China; at Kobe and Yokohama, Japan; at Tacoma, Washington, and Portland, Oregon, U.S.A.; at Victoria, B.C., and at Dock House, Billiter Street, London, as Dodwell, Carlill, & Co., and to carry on the business of merchants, exporters, importers, ship-owners, carriers, agents, brokers, stock-keepers, &c. The subscribers are:—

	Shares.
G. B. Dodwell, Dock House, Billiter Street, E.C., merchant ...	1
A. J. H. Carlill, Dock House, Billiter Street, E.C., merchant ...	1
Mrs. J. Dodwell, 72, Porchester Terrace, W.	1
F. D'Iffanger, Dock House, Billiter Street, E.C., merchant ...	1
T. M. Dermer, Dock House, Billiter Street, E.C., merchant ...	1
W. L. L. Grant, Dock House, Billiter Street, E.C., merchant ...	1
J. H. Champney, 103, Cannon Street, E.C., C.A.	1
H. H. Stewart, Dock House, Billiter Street, E.C., merchant ...	1

The number of directors is not to be less than 3 nor more than 10. The first are:—G. B. Dodwell (Chairman), A. J. H. Carlill, F. D'Iffanger, G. S. Thomson, E. S. Whealler, F. Dodwell, T. M. Dermer, H. A. J. Macray, and W. L. L. Grant; qualification, £1,000; remuneration £100 each per annum, and £200 for the Chairman.

THE CHINA TEA TRADE.

Says the Hongkong *Daily Press*:—The Indian and Ceylon tea planters use as one of their arguments against a high exchange value of the rupee the bounty that cheap silver is supposed to confer upon China tea, thereby favouring the competition of the latter. So far the bounty, if there is any bounty in the matter, has done little good to China tea, the trade in which is steadily declining, the advantages of cheap silver weighing but as a feather in the scale against the heavy disadvantages of excessive taxation and primitive methods of cultivation and preparation. Mr. F. E. Taylor, the Statistical Secretary of the Imperial Maritime Customs, in his report on the foreign trade of China for 1897, expresses a belief in the possibility of reviving the tea trade. "I believe," he says, "that the experiment commenced at Foochow, and shortly to be initiated at Hankow, will, if sufficient leaf can be procured close to the factory, eventually result in a success which will encourage the adoption of similar methods in other centres of the tea industry and will regain for this important trade a large measure of its former prosperity." It is possible that this opinion may be justified by the result, provided that with improved methods of growth and preparation there also goes some considerable measure of relief from the present scale of taxation, for the industry could not possibly flourish, however well conducted as regards cultivation and preparation, so long as the State continued to lay excessive burdens upon it. Relief from illegal or excessive taxation is one of the results that may be expected from the direct participation of foreigners in the industry. Prohibitive import duties imposed for the protection of home industries may admit of some defence on economic grounds, but what shall be said of a Government that taxes its export trade out of existence by prohibitive duties? While that policy continues in respect of China's tea trade the Indian and Ceylon planters need have little fear of any formidable competition being nursed by variations in the gold value of the dollar and rupee.

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[w. 3-12-98—t.f.o.]

3

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[w. 19-11-98—18-2-99.]

PRICES OF COMMODITIES.

MR. A. SAUERBECK, in his usual circular relating to the prices of commodities, states: The following are the index numbers of the prices of 45 commodities, the average of the eleven years 1867-77 being 100:—

Average.		Monthly Numbers.	
1878-87 ...	...=79	July, 1896 ...	59·2
1888-97 ...	...=67	December, 1897	62·4
1889 ...	...=72	May, 1898 ...	66·4
1893 ...	...=68	June, 1898 ...	64·7
1894 ...	...=63	July, 1898 ...	64·3
1895 ...	...=62	August, 1898	64·0
1896 ...	...=61	September, 1898	63·9
1897 ...	...=62	October, 1898	63·6

During the month of October prices for corn were, on the whole, maintained, a reduction in the case of oats being balanced by a rise of maize. Sugar and coffee were also scarcely changed; but pork, bacon, and butter ruled lower. Metals and petroleum, on the other hand, experienced a distinct rise, while for textiles and hides the tendency was downward. Taking articles of food and materials separately, the index numbers compare thus—

	June, 1896.	Dec., 1897.	May.	Sept.	Oct., 1898.
Food	59·4	66·5	71·5	66·2	65·0
Materials.	59·3	59·4	62·7	62·3	62·7

The divergence of prices which has existed since the middle of 1896 is getting gradually smaller, and, while articles of food are now 2 per cent. lower than at the end of last year, materials stand $5\frac{1}{2}$ per cent. higher. The prices and index numbers of silver were as follows (60·84*d.* per oz. being the parity of 1 gold to $15\frac{1}{2}$ silver=100):—

End Aug., 1897	$23\frac{7}{8}d$=39·2	End July, 1898 ...	$27\frac{1}{16}d$=44·5
End Dec., 1897	$26\frac{5}{8}d$=43·8	End Sept., 1898 ...	$28\frac{1}{4}d$ =46·4
End Mar., 1898	$25\frac{11}{16}d$=42·2	End Oct., 1898 ...	$28\frac{1}{4}d$ =46·4

RUSSIA AS A TEA-GROWING COUNTRY.

CEYLON enterprise has done yeoman service to Indian tea. It has introduced the thin end of the wedge into Russia by forcing in the course of last year two million pounds of tea on its markets. This, says a daily contemporary, is a beginning which should indicate good prospects for the Indian article as soon as our planters succeed in adapting these methods to Russian taste, and producing tablet tea of the flavour required, but there are a few facts besides which must not be lost sight of. The Russian Empire imports more than 90 million pounds of tea annually and the great bulk is still furnished by China, whence it is imported at very low freights by returning vessels of the volunteer fleet despatched to the Far East with troops, convicts, railway material, and munitions of war. Then the duty on tea is 1*s.* 9*d.* a pound, and one may imagine what a premium and encouragement that constitutes to attempts to grow the precious herb in Russian territory. The tree trade freed from that crushing duty will be one of the bribes which Russia may offer to districts in China that she may succeed in annexing or bringing under her influence. Russian merchants at Shanghai in association with Chinese subjects have begun to introduce English made tea making machinery into China to favour Chinese at the expense of Indian tea. But apart from that there are districts on the western slopes of the Caucasus eminently fitted to the culture of the leaf. The climate, soil, and waterfall, the landscape on the railway journey from Batoum to Kutais remind one very forcibly of the Indian slopes of the Himalayas, and tea gardens are not wanted to complete the similitude. Mr. Popoff, of Moscow, who is to Russia what Lipton is to England, has 250 acres under tea flourishing and paying, the Imperial domains boast of 150 more, and the pioneer of the tea industry in the Caucasus, a retired engineer of the name of Slovitzoff, who began planting so far back as 1885, has some tea gardens in the Chakva valley, only seven miles from Batoum.

Labour is one of the difficulties in those regions, for the population is sparse and field hands are paid at the rate of 1*s.* 6*d.* a day, but cheaper labour could be imported from other districts, as we have done under still more unfavourable circumstances in Assam and the margin of 1*s.* 9*d.* a pound on duty-free tea will help to surmount that difficulty. Mr. Popoff has capital and enterprise: Chin gardeners were imported by him regardless of expense to start plantations, the Superintendent of the Imperial tea domains w until lately, an Englishman, and the best English tea machin will not be wanting in the Caucasus. Tea gardens, however, not made in one day, and, on the other hand, the samovar bubb in every homestead in the Muscovite Empire; the humblest Mou will have his tea—when he cannot get enough vodka—and it will many a long year yet before Russia, anxious as she may be to gr her own tea, can produce any appreciable quantity of the tea consumes, in Russia itself or in protected Chinese Provinces. Th years are the opportunity of Indian planters. If our teas o establish themselves in the favour of the people and on the mark of Russia, it will be afterwards difficult to oust them even b protected article. The voice of the consumer—of the Moujik in t instance—is the *Vox Dei* under the inexorable laws of supply a demand, and people will have what they like to eat and to dri even under despotic forms of Government. It is unfortunately deserved reproach on English producers and manufacturers th they do not adapt themselves readily to the taste of their custome and that reproach holds good against Indian planters as far teas for the Russian markets are concerned, but if Indian tea pla ers would only bestir themselves, we should not be long befor really marketable article would make its appearance from our Indi tea gardens to cheer and not inebriate the Muscovite.

TEA COMPANIES.

THE *Central Province (Ceylon) Tea Company, Limited.*—The follo ing is from the report of the directors:—The total crop from estates for the past season was 751,791 lb. against 713,330 lb. l year, being a substantial increase, though 30,000 lb. under estimate, chiefly owing to the abnormally dry season. The to sales, including bought tea, were 1,025,963 lb., averaging 5·85*d.* per The manufacturing business shows some improvement. The yi of cocoa was 492 cwt. against 507 cwt., but owing to the average pr being 62s. 3d. per cwt. against 54s. 2d. shows a larger pro Seventy-two acres have been cleared during the year, and there now 234 acres tea under three years' old. The Directors regret t the season's operations have not resulted more favourably. T profits have been affected by the higher rate of exchange, averagi 1s 3·96d per rupee, against 1s $3\frac{1}{8}$d last year, and also by the differe in price realised by the company's teas, which averaged as abo 5·85d per lb. against 6·35d last season. The net profits for the y amount to £4,099 0s 7d, which, with £1,351 12s 4d brought forw from last year, shows a sum of £5,450 12s 11d available for divisi Of this sum, £638 14s 9d has been written off for transfer duties, & and £1,500 has been applied to the payment of a dividend at the r of 6 per cent. per annum on the preference shares to Decemb 31st, 1897. The Directors now recommend a dividend at 6 per ce on the preference shares to June 30th, 1898, leaving a balance £1,811 18s 2d to be carried forward. It has been determined rebuild the factory at Weyweltalawa, at an estimated cost of abo R28,500, on a new site nearer the cart road, and the work is now progress. In view of this expenditure and the desirability of havi the interim dividend on the preference shares in hand, they ha deemed it necessary to write off the above-mentioned transfer dut in one sum, and to recommend no dividend on the ordinary share

Caledonian Tea Estates Company.—This Company is the succes to the Caledonian (Ceylon) Tea Plantations, Limited, which w formed in May, 1892. The Profit and Loss account to 30th Ju last, after providing for interest on Debentures (£40,000 at 5 p cent). London charges, Directors' Fees, &c., shows a balance credit of £2,268 14s. 1d. The Directors recommend the payment, of this amount, of a Dividend on the Preference shares (£32,0 issued) at the rate of 6 per cent. per annum, from the dates of p ment of the several instalments thereon to 30th June last, amounti to £1,133 12s. 8d , and a Dividend on the Ordinary shares (£35,0 issued of six shillings per share, amounting to £1,050. This pro for the Ordinary shareholdrs, taking into consideration the dates payment of the several instalments, works out at about $4\frac{1}{3}$ per ce The result of the first year's working falls short of the Origi Estimates, owing to causes which have affected returns from mo if not all, Tea Estates in Ceylon. The report discourses thus

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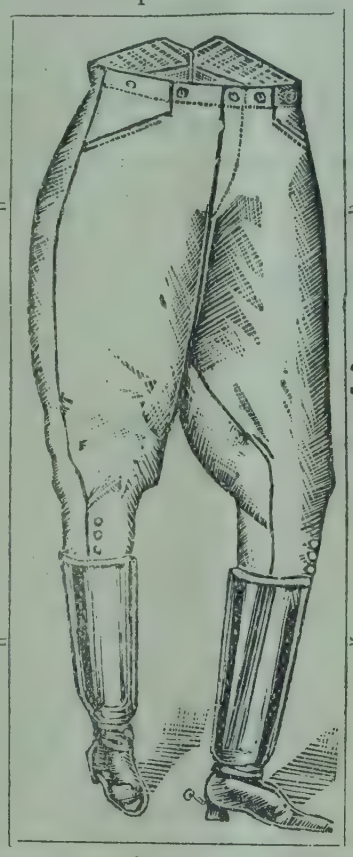
Breeches-making is a *specialité* with us. **Mr. Smith,** the proprietor, deals with every pair, and we warrant turning them out to satisfaction as regards fit, style and workmanship.



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Putties 8 ft. long
Rs.2.

Box Cloth Leggings
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Leather Leggings
Rs.12.

Read this letter; it will convince you that we *can* make Breeches. **Mr. H. S. Dickins,** of Yercaud, writes: "*The Breeches received; they fit me perfect. I can, with confidence, recommend you as Breeches Makers to all my friends. We get our kit from Bombay, and have to pay about double your price.*"

[w. 1-10-98—31-3-99.] **E. D. SMITH & CO., MADRAS.**

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[w. 15-10-98—14-1-99.]

TO PLANTERS.

PLANTERS WHO REQUIRE

Estate Tools, **Bricks,**

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are requested to communicate with

THE INDIA TRADING CO., Ld.,

11/12, 2nd LINE BEACH, MADRAS.

Prices on application.

The season proved generally dry and abnormally cold, causing a serious shrinkage in yield throughout the tea-districts. This and the low prices prevailing have contributed almost entirely to bring about the comparatively disappointing result of the season's operations. This being the first year of the Company's business, and in view of the fact that part of the buildings and machinery are new, whilst a considerable sum has, during the year, been spent on upkeep and repairs and charged to current expenditure, the Directors have not thought it necessary to write off anything for depreciation. The estimates for the current year ending 30th June next, taking Exchange at 1s. 4½d., and the average price of the tea at 7d. per lb. net (which is below the present average) promise a satisfactory return on the ordinary shares, after providing for debenture interest, preference share dividend, London charges, etc., owing to the large area now beginning to come into bearing. The present statistical position of tea, together with the increasing demand for British-grown tea for foreign and colonial markets, justify the Directors in contemplating hopefully the future of the Company's business.

MARKET REPORT.

COFFEE.

Messrs. Wm. Jas. & Hy. Thompson's Report of the Colonial Markets for the Week ending November 23rd, 1898, states :—

This market has again been dull throughout the past week. Only a small part of the supplies catalogued have been sold, importers being firm. Good colory Guatemala met with a fair demand, but was held for ver full prices.

At the Dutch Sale held in Amsterdam on the 22nd inst., 20,504 bal Java and 48 bales Sumatra were offered, and sold at very irregular price good ordinary Java selling at 32½ cents, against 34 cents at the Octob sale.

Daily receipts averaged 7,100 bags in Rio and 14,500 bags in Santos.

Futures have fluctuated, and close quiet at 3d to 6d advance, viz :- Good average Santos in Havre, December delivery, fcs. 37.25, in Hambu pf. 31, and No. 7 low ordinary Rio in New York $5.35.

To-day's London official quotations are :—

	Nov.	Dec.	Mar., '99.	May.	July.	Sep
SANTOS ...	30/9	30/6	31/6	32/	32/3	32/

We quote :—

Ceylon, mid. to good mid.	102/	@107/	
Do. small to low mid.	79/	„ 99/	
East India, mid. to good mid...	71/	„ 91/	
Do. small to low mid.	57/	„ 71/	
Guatemala, mid. to fine...	63/	„ /101	
Do. good ord. to low mid...	37/	„ 62/	
Salvador, good ord. foxy greenish...	37/	„ 40/	
Costa Rica, mid. to fine...	67/	@10	
Do. ord. to low middling.	37/	„ 6	
Jamaica, good to fine ord.	31/	„ 4	
Do. greenish to fine colory...	61/	„ 12	
African ...	26/	„ 2	
Columbian, ordinary ...	36/	„ 4	
Do. good ord. to low mid...	42/	„ 6	
Do. mid. to fine...	65/	„ 10	

The *London Commercial Record* of 25th ultimo says :—

The market continues to exhibit the dull tone which has so long pr vailed, although in a few exceptional cases an active demand has be experienced at prices adverse to the buyer. Supplies on the whole ha

HIGH CLASS TAILORING.

We have now secured the services of Mr. W. J. Marden, whose experience as a Cutte and Practical Tailor extends to a period of over 20 years in some of the leading houses i England and India, and whom we can, therefore, confidently recommend as a veteran expe cutter. Having placed our Tailoring Department under his control, we guarantee perfe Fit and Style. This assurance, coupled with our proverbially Cheap Rates, will, we trus induce you to give us a trial order, which we respectfully solicit.

FREE CHRISTMAS GIFTS.

We are giving away 4 Bicycles and 200 useful Prizes. Numbered Ticket is given fo the purchase of every 2 Rs. worth of goods. Drawers of the lucky numbers will receive th prizes free.

ROYAL EMPORIUM,
BANGALORE

[w. 3-9-98—t.f.o.]

Agents for LEA & PERRINS' WORCESTERSHIRE SAUCE.

CROSSE & BLACKWELL'S, LTD.

By Special Warrant Purveyors to The Queen AND Empress of India.

CELEBRATED OILMAN'S STORES.

[w. 1-10-98—t.f.o.]

been on a smaller scale, and no Ceylon or East India have been offered. Some common qualities of Foreign growths, between 30s and 40s per cwt., have met a fair demand, and the limited quantity of fine colory samples sold rather higher, but there is still an absence of any activity in the general demand. The market for "futures" opened with improvement and a general advance was maintained, but the closing prices are somewhat below the highest point.

London	...Santos	... March	delivery	... 31s. 9d.
New York	...No. 7 Rio	.... „	„	... 5.65 cents.
Hamburg	...Santos	... „	„	... 31½ pf.
Havre	...Santos	... „	„	... 38¼ francs.
Holland	...Good ordinary Java	...		... 32½ cents.

At the Dutch Trading Company's public sale of 20,552 bags Java, held on Tuesday in Amsterdam, very irregular prices, mostly below valuations, were realised, good ordinary Java selling at 32½ cents against 34 cents obtained at the October sale.

Imports, Deliveries and Stock of Coffee in London are as follows :—

		Stock.		Imports.	
		1898.	1897.	1898.	1897.
West India ...	tons	461	280	1,718	849
Ceylon ...	„	96	144	326	576
East India ...	„	1,277	1,310	5,644	5,268
Mocha ...	„	515	416	871	621
Brazil ...	„	4,061	2,718	4,047	3,245
Other Foreign ...	„	10,369	4,942	29,800	23,175
Total ...	„	16,779	9,810	42,406	33,734

		Home Consumption.		Export.	
		1898.	1897.	1898.	1897.
West India ...	tons	303	312	1,292	607
Ceylon ...	„	127	177	209	379
East India ...	„	2,282	2,185	3,192	2,585
Mocha ...	„	680	514	171	214
Brazil ...	„	911	1,301	2,050	2,461
Other Foreign ...	„	8,317	8,369	15,785	12,962
Total...	„	12,620	12,858	22,699	19,208

The preceding figures exhibit—

In the imports an increase this year of	8,672	tons.
Home consumption a decrease of	238	„
Export an increase of ...	3,491	„
Stock an increase of ...	6,969	„

Auctions this week have gone off as follows :—

NYASSALAND.—17 bags bought in.

JAMAICA.—Of 83 barrels 3 bags offered a small part sold, good ordinary pale 33s to 35s, fine ordinary 40s.

COSTA RICA.—197 bags offered and 80 bags sold, ordinary brownish and dingy pale 30s to 34s.

GUATEMALA.—3,415 bags catalogued only about 650 sold, smalls 29s 6d to 37s, ordinary small and brown 32s to 34s, good ordinary dull pale 36s 6d to 37s, fine colory bold 92s, peaberry 100s; London-cleaned, smalls 32s, ordinary to fine ordinary 36s to 44s.

VERA PAZ.—348 bags nearly all sold, smalls 25s to 34s, ordinary brown 32s, good to fine ordinary brownish and pale 35s to 46s, peaberry 39s to 51s 6d.

VENEZUELAN.—470 bags bought in.

MEXICAN.—99 bags sold, triage 25s, ordinary pale 27s 6d, ordinary brownish 30s 6d to 34s.

COLOMBIAN.—1,351 bags offered and about 1,150 bags sold—small and ordinary pale 32s to 36s, good ordinary pale 37s 6d, fine to fine fine ordinary 46s to 56s, low middling gray 59s; London-cleaned, smalls 30s to 39s, damaged and soft greenish red 44s 6d to 54s 6d, low middling greenish 57s to 60s, middling colory greenish 62s to 68s, good middling to good 72s to 85s, peaberry 60s to 80s.

SALVADOR.—39 bags bought in.

BRAZIL.—Of 1,464 bags Santos only 30 bags small sold at 31s landed terms.

Receipts in Rio and Santos.

Since July 1	1898-9. Bags.	1897-8. Bags.	1896-7 Bags.	1895-6. Bags.
Rio.....	1 534,000	2,275,000	1,800.000	1,271,000
Santos.....	3,230,000	3,882,000	3,035,000	1,991,000
Total.....	4,764,000	6,157,000	4,835,000	3,262,000
Crop.....	—[illegible]	10,461,000	8,680,000	5,489,000

Exchange 8½d, previous day 8[illegible]d.

Closing report.—Auction supplies consisted of :—108 bags Jamaica, 55 bags South Sea, 156 bags Nyasaland, 919 bags Columbian, 1,925 bags Guatemala, 1,726 bags Salvador, 163 bags Mexican, 26 bags Bolivian, 485 bags Costa Rica, 148 bags Nicaragua, 203 bags Venezuela, 52 bags New Granada, 167 bags Coban, and 1,080 bags Vera Paz. A flat market and nearly all offered bought in. Good bids made for foxy greenish Guatemala —this the only feature.

COCOA.

Auctions on Tuesday were extremely slow, and of the large supply of 6,926 bags catalogued, only 800 bags sold at an irregular fall in value of 6d to 3s per cwt. 1,205 bags Trinidad offered, and 300 bags sold at 75s to 76s for fair to good red, and 69s 6d for ordinary dark. Of 375 bags Grenada 135 bags were placed at 6d to 1s decline—72s for good red, and 70s to 71s for common to fair. 34 bags St. Lucia partly sold at 65s to 66s, and 2 bags St. Vincent brought 68s. Of 112 bags Jamaica 15 bags realised 67s. 56 bags Demerara, 2 bags Dominica, 326 bags Venezuelan, 107 bags Tumaco, 269 bags Samana, 290 bags Colombian, 47 bags Domingo, 90 bags Bahia, and 414 bags African all retired unsold. Of 2,822 bags Guayaquil, 220 bags Caraquex sold at a fall of 3s, viz., 72s to 73s. 13 bags Seychelles partly found buyers at 60s 6d for defective and 66s for fair. Of 663 bags Ceylon, about 80 bags sold at 65s per cwt. Privately 100 bags Tenguel Guayaquil sold at 75s also some Caraquez at 75s, and after-crop Arriba at 73s; fine bright Ceylon sold at 79s per cwt.

Import, Home Consumption, Export and Stock of COCOA in London are as follows :—

			1898.	1897.	1896.	1895.
Imports, B. P. ...	bags		115,777	107,779	118 744	118,292
Foreign ...	„		105.329	74.541	62 964	86,675
Home Con., B. P. ...	„		93,211	79,529	70,303	65,499
Foreign ...	„		56,629	52,102	48,669	52,564
Exports, B. P. ...	„		31,719	44,092	37,036	33,426
Foreign ...	„		27,185	45,852	29.829	31,795
Stock, B. P. ...	„		50,986	62,033	77,225	68,640
Foreign ...	„		55,015	36,805	62,007	73,862

TEA.

The *Record* of 25th ultimo says :—

CHINA.—There is very little enquiry for the better grades of Congous, but the lower qualities are in good request at occasionally some improvement in prices. At auction 8,473 packages have been catalogued during the week and a fair proportion of the Congous sold at firm rates, but Scented Capers were generally bought in, holders' ideas being too high, whilst Green was cheaper.

INDIAN.—Rather heavier sales were held, comprising 48,100 packages *versus* 46,800 packages for the corresponding period of 1897.

There was a fair demand for all useful liquoring parcels, but where Garden invoices showed a falling off in quality as compared with former arrivals, there was less disposition to purchase and quotations were often lower. Common and undesirable kinds, particularly in Calcutta-bought shipments, were somewhat neglected and many lots were withdrawn, owing to offers being under limits. Judging from the daily duty payments, consumption is going on favourably, and the statistical position when the monthly returns are issued promises to be satisfactory.

For 34,100 packages on Estate Account 8½d was realised, against 8¾ per lb. for 24,700 packages and 8½d per lb. for 34,000 packages in the two foregoing seasons.

Including catalogues for Monday, the 28th inst., 197,700 of this season's growth have been printed, which will bring the quantity disposed of to about 67,000,000 lb., contrasted with 212,000 packages in November of the preceding year, and 66,000,000 lb. sold to the end of that month.

CEYLON.—Public auctions embraced 21,200 packages opposed to 18,300 packages on the 15th inst., and 9,700 packages in 1897.

Pekoe Souchongs and Pekoes again met with good enquiry and passed firmly, a fractional advance being occasionally recorded notwithstanding the temporary curtailment of orders from abroad. Ordinary to medium Brokes Pekoes were taken up at steady rates but fine and finest which were sparsely represented, continued to mark considerable irregularity in value though no further decline was established.

Owing to the smaller proportion of fine tea the average has fallen to 8⅜d per lb. On the 17th inst. it stood at 8½d per lb., and 8¾d per lb. on the 25th November, 1897.

JAVA.—Only 540 packages of direct import were brought forward which went off with spirit without material alteration.

About 1,500 packages are declared for the 1st proximo.

Deliveries.

The clearances of all Tea (on which duty has been paid) from the London warehouses, as per official returns, were:

From 1st to 22nd Nov., 1898.....13,856,660 lb.
" " 1897.....12,144,057 "

During the week the following have been printed for sale by public uction:—

	Sold. Pkgs.	Withdrawn. Pkgs.	Total offered. Pkgs.
India	40,306	7,837	48,143
Ceylon	20,057	1,109	21,166
Java	320	220	540
Total	60,583	9,166	69,849

Also 520 packages from second hands.

Messrs. Gow, Wilson and Stanton's Indian, Ceylon, and Java Tea Report, dated November 25th, 1898, says:—

QUANTITY BROUGHT TO AUCTION IN LONDON

FROM 1ST JUNE TO DATE.

	Indian.	Ceylon.	Java.
1898-1899.	781.357 pkgs.	590,259 pkgs.	21,996 pkgs.
1897-1898.	762,654 "	605,715 "	21,372 "

48.515 pkgs. Indian
21,377 " Ceylon
540 " Java.
} Total 70 432 packages were offered in public auction this week.

Foreign and Colonial markets for British Grown Tea continue to expand with a steadiness which augurs well for the further development of this necessary outlet for the produce of India and Ceylon.

1898.	1897.	1896.	1895.	1894.
lbs. 42,918,654.	34.859,215.	28,250,961.	25,002,230.	20,905,531.

The quantity taken in the first nine months of 1898 was more than double that of 1894;—only four years ago; and the present year has already witnessed a most important increase in markets which are capable of absorbing very large quantities, when once the taste has been fully established.

EXPORTS of INDIAN and CEYLON TEA (in lbs.) to places outside the United Kingdom from 1st January to 30th September.

INDIAN.	1898.	1897.	1896.	189
Re-exports from U. K. ...	5,095,095	3,758,006	2,461,673	2,760,6
Transhipments (about) ...	941,000	2,534,862	1,679.694	1,221.7
Direct Exports from Calcutta.	9,968,452	7,765,413	7,668,027	6,328,7
Total lb. ...	16,004,547	14,058,281	11,809,394	10,311,1

CEYLON.	1898.	1897.	1896.	189
Re-exports from U. K. ...	8,831,540	7,804,955	5,885,257	5,382,1
Transhipments (about) ...	1,255,000	1,654,474	942,203	792,6
Direct Exports from Colombo.	16,827,567	11,341,505	9,614,107	8,516,2
Total lb. ...	26,914,107	20,800,934	16,441,567	14,691,1

It is satisfactory to record a steady increase in consumption at home co currently with expansion abroad.

Indian. No material change has taken place in the market; mediu Teas with useful liquor continue to attract more attention, while the bi ding for commonest grades has not been quite as keen as a few wee since. Averages worthy of note:—"Beheating," 1/7¼ "Poobong," 1/3.

Ceylon. Bidding was mainly concentrated upon the lower grad everything up to about 7d. showing a strong market. Better descriptio met with a trifle more attention than last week. The following averag may be mentioned:—"S.T. Co., St. Leonards," 1/0½; "Dimbula Vall Co. Lippakelle," 11¾. Average for the week 8·23d., against 8·50d. sa period 1897.

Ceylon Tea sold on Garden Account 1st Jan. to date 1898, 1,013,711 pkg av. 7·72d. 1897, 979,425 pkgs., av. 7·77d.

	1898.	1897.	1896.	189
PEKOE SOUG. (Ordinary leaf; fair liquor) ...	6½d	6¼d	6¼d	6½
PEKOE. (Ordinary leaf; little twist; fair liquor) ...	7¾d	7½d	7¾d	7¾d
PEKOE SOUG. (Rather bold leaf; indifferent liquor) ...	5¼d	5d	5d	5¼
PEKOE. (Somewhat bold leaf; indifferent liquor) ...	5¾d	5¾d	5¾d	6d

Java. Only 540 packages were brought forward and sold steadily f the lower grades.

PUBLIC SALES FOR SOUTH INDIAN TEA.

(AVERAGE FOR ALL INDIA 8 33d.) *November 25th.*

GARDEN.	Total.	Average.	Broken Org. Pek. or Flowery Pekoe.		Pekoe and Unassorted.		Broken Pekoe.		Pekoe Souchong.		Broken and Souchong.		Fannings, Dust and Various.	
	Quantity	Price.	Quantity	Price.	Quantity	Price.	Quantity	Price.	Quantity	Price.	Quantity	Price.	Quantity	Price
Neilgherry ...														
Tudor Hall ...	109½ c	9	...	...	54½ c	8	55½ c	10	...	...	...	...	...	...
Travancore ...	**262**	**6·38**												
Riviera ...	50	5¼	...	...	36	5	14	6	...	...	...	...	...	...
Sth Trav Est Ven ...	162	7	...	...	69	7	59	7 8½	26	5¾	...	...	8	4½
Stagbrook ...	50	5½	50	5½ 6	...	...	...	...	...	...	...	...	...	...

Bank Rate 4 per cent. Exchange on London three months' sight:—Calcutta 1/4⅛. Colombo 1/4⅛.

IN AUSTRALIA.

SYDNEY, *November 21st.*—A considerable business has been done in Panyongs—a good export demand being diverted to this centre by the imposition of the 3d. duty in Sydney. Sales of 2,500 packages at 5½d. to 5¾d. for original weight common teas, 5¾d. to 6d. for light weight do., and to 7¾d. for finer qualities; a good demand. The Australian brings the last shipment from Foo Chow, bringing the total for the season up to 5,750,000lb. Indian firm and the Calcutta market has again advanced.

To-morrow Messrs. Henry Harris & Co. will offer a catalogue of 1,152 packages of teas, comprising 702 Ceylons and 450 Indians on account of Messrs. Gerber, Michaut & Co., Smith, Findlay & Co., H. J. Langdon & Co., and the Ceylon and Indian Tea Shippers' Associations.

MELBOURNE, *November 19th.*—A moderate business has been done to-day, comprising 300 half-chests panyong at 5½d., 200 quarter-chests buds at 6d., 200 quarter-chests S.O. pekoe at 7d., 30 chests Assam at 6½d., and 80 packages Ceylon at up to 7½d. On December 6th, Messrs. Fraser and Co. will offer 1,274 packages Indian on account of Messrs. Jas. Henty and Co.

ADELAIDE, *November 19th.*—In tea, there is fair volume of distributing trade doing, but nothing of special moment.—*Australian papers.*

PEPPER.

Black.—The market is steady for parcels on the spot, but is lower f arrival. About 150 tons have been sold, including fair Singapore on t spot at 4⅞d to 4 13/16d, October-December shipment at 4 13/16d, January-Mar at 5d to 5 1/32d.

At auction on Wednesday 244 bags Singapore were bought in at 4⅞ also 400 bags Tellicherry at 4¾d per lb.

White is quiet. Singapore on the spot has been done at 8 1/16d a January-March shipment at 8⅛d; Penang on the spot at 7½d to 7 9/16 November-January 7 9/16d, January-March at 7 13/16d to 7¾d, and Februar April at 7 13/16d per lb. Sales 100 tons.

At public sale on the 23rd inst., 392 bags Singapore, 81 bags Siam, a 164 bags Penang all passed the hammer unsold, except 20 bags good of t last-named description which sold at 7⅛d per lb. short prompt.

Sweet Red.—8 cases Spanish retired at 90s per cwt.

GINGER.

Cochin.—There is very little doing in this article, but cut B's so "without reserve" at higher prices. Catalogues comprised 443 bags 5 cases, of which 40 bags 52 cases sold—B cut, plump but rather small, 6 to 61s 6d, small to boldish hard rough 22s to 22s 6d per cwt.

PLANTING OPINION.

A WEEKLY JOURNAL

WRITTEN BY PLANTERS FOR PLANTERS.

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SUBSCRIPTION.—Advance Rates: Yearly, Fifteen Rupees; Half-yearly, Eight Rupees; Quarterly, Five Rupees, and Monthly, Two Rupees, including postage. Sin gle Copies, Eight Annas.

ADVERTISEMENTS.—The charge for line advertisements is 4 as. per line for the first, 3 as. for the second, and 2 as. for the third and succeeding insertions. Five-line (or shorter) advertisements from Subscribers will be inserted for three issues for one rupee; non-Subscribers will be charged two rupees.

DOMESTIC OCCURRENCE.—The fee for inserting a domestic occurrence will be *One Rupee* for each insertion, payable in advance.

N. B.—Remittances should be sent to E. C. Duft & Co., Proprietors, "Planting Opinion," 16/17, Armenian Street, Madras.

NOTICE.

In consequence of the Christmas Holidays there will be no issue of *Planting Opinion* next Saturday. We take this opportunity, therefore, to wish all our readers both a Happy Christmas and a Prosperous New Year.

SEASON REPORTS.

TO OUR SEASON REPORTERS.

Please post your next reports to reach Madras on Friday, the 30th December, 1898.

Season Reports should be sent to the Printers, Messrs. Addison & Co., direct, and not to *Planting Opinion* Office.

Coorg.

Polli Betta, 21*st Dec.*—*Weather.*—Cool, bright and Eastwindy the greater part of last week, cloudy one evening. Ditto yesterday and to-day, but don't fancy it portends rain. A small shower would perhaps assist trees to ripen crop, but heavy or continuous rain is to be deprecated. *Crops.*—Contract picking nearly everywhere; apprehensions of water running short owing to lateness of crop. Crops turning out well. *Plant-diseases.*—Leaf-disease in a milder form still about; trees looking well considering the crop on them; promise for next season good.

PLANT LIFE—ITS FRIENDS AND FOES.

In the world of human beings there are both carnivorous feeders and vegetarians, and if the comparative weakness of the latter prevents them from preying on the former to the same extent as they are preyed upon in turn, both at least follow the maxim of "every man for himself." In the world of animals, the carnivorous feeder preys even more openly upon the vegetarian, though he may occasionally be vanquished in the struggle. In the worlds of birds and insects again, we find the same broad general division of classes, and here again the tendency is for the flesh-eaters to make and to hold the position of conquerors, and for the vegetable-eaters to be the subjugated, where subjugation usually means death. In all four worlds there are doubtless those also who eat both flesh and vegetables, according

to taste or circumstances. But the general principle that the carnivorous prey upon the vegetarian is one that has been long recognized by agriculturists, among others, and that has been utilized very largely for the extinction of predatory birds and insects. When a man finds his coffee suffering from the ravages of a fungus or a bug, it is no time to preach to him about "blessings in disguise." His inclination is to exterminate the depredator. His crops fall short, and perhaps suffer in quality as well as quantity. Tell him that this must react upon prices, and thus eventually restore the balance: and he will probably reflect that by the time this reaction sets in there may be no balance at his bankers' capable of restoration. Yet, for all this, in studying the question of foes to plant life, and foes of these foes, we must not overlook the fact that pests, as well as droughts and floods, may at times serve a very useful purpose. They may, in effect, tend to check the evils of over-production just as disease among human beings tends to check the evils of over-population. We must be prepared to accept many apparent evils as dispensations of an all-wise Providence. But the disposition of most men is to view very philosophically the evils that fall upon their competitors or even at times their neighbours, and by no means calmly or with resignation upon such as befall themselves.

Writing, as we now do, with more especial reference to the producing interests of Southern India, concerning Rice, Sugar, Oilseeds, Tea, Coffee, &c., we must remark at the outset that short-production of several of these commodities can in no case be a real benefit to India. As regards Rice, it can scarcely benefit any one, for who can suppose that a falling off in South Indian crops affects prices generally throughout the world? On the other hand, a sudden disaster to Brazilian coffee crops, or American or Russian wheat, or to many other articles, does immediately find a counterpoise in a rise in prices in many countries. This, therefore, is a point of some importance when men attempt to tamper with the works, and regulate the speed or force of nature's machinery, to suit their own convenience. It is a point that should be always kept in view where efforts are made to exterminate plant or fruit pests or to eradicate plant diseases. Care must be taken, too, to see that previously unknown evils of great magnitude are not substituted for known evils of lesser importance. For instance, the pest that preys upon coffee is in turn eaten by lady-birds, they are pursued by certain birds, and these by other birds and animals, and so on. When man steps in and weakens or strengthens one link, or more, in the chain, he can never be quite sure of what the eventual result will be. It has been well said that in an entirely normal state of nature the relations between plant-feeding insects and their enemies remain practically the same during a series of years. Some predaceous animals and insects prey indiscriminately upon various plants. Others confine their attention to a particular species or a few closely allied species. Hence, in the latter case, the abundance of a particular species of insects is greatly influenced by the abundance of those enemies. If, however, its enemies keep an injurious insect in an almost complete state of subjection, one result is that they become too numerous; that they run short of food and perish for want of it; and the survivors among its pests are left free to breed and multiply again, and have a good time with the plants they love. A fresh reaction sets in later, and so the pendulum swings betwe seasons of abundance and scarcity, of victory and defe of life and death.

Now this rise and fall of particular insect "nation takes in some instances but a season, in others several yea The general principle noticeable, however, is that nat tends to preserve a balance, and under strictly natu conditions no insect long remains superabundant. In t connection "natural conditions" mean wild growth. Now days modern artificial conditions predominate. This hu area has been set apart for the cultivation of coffee, that tea; one for rice, another for the sugar-cane. The pla are cared for, made more tender, more succulent. The pla feeding insect is a highly appreciative consumer. Intend to live as a species of insect Bedouin, picking a liveliho up in the desert, fighting for his food and his life, finds himself in a bed of clover, tenderly cared f with rich food provided without any trouble on his pa What would happen to the human Bedouin under simi conditions, happens to the pest of plant life. He enjoys su an excellent time that he becomes bloated and unhealth The day will eventually come when some enemy will r against him and wreak a revenge for past wrongs, a insults and impositions. But that time may be lo deferred, or may come soon. If man is his enemy, the will certainly be a vigorous attempt to put him un subjection without delay; and thus it is that insects are, to speak, artificially bred and trained to prey on insec in the interests of man. There can be no doubt that ve many useful operations of this kind have been conduct and that scientific investigation has rendered great serv to cultivators. At the same time, we think that m planters in Southern India will agree with us in our opini that the use of predaceous insects should be a seconda remedy. As a general rule, the primary object of t planter should be to give his plants liberal and healthy nut tion; to select good strains of seed, and really stro and healthy specimens of those strains; to cultivate plants according to natural conditions, and so to build a strong and hardy stock capable of successfully resisti the attacks of ordinary foes. When extraordinary fo come, extraordinary methods must be resorted to, and it at such times that we hear of the necessity for special lab birds, &c., &c. We are very far from opposing spec methods such as these. Our contention is simply that t chief safeguard against foes and disease is the streng that springs from perfect health. Hence, it is the health plant life that should be the cultivator's chief care.

AN OLD FRIEND UNDER A NEW NAME.

THE *Ceylon Observer* has got things a bit mixed. says:—"Mr. Newton—a well-known planter of some twel years' standing in Southern India—is now in Colom to go on by the Orient s.s. 'Orizaba' to Sydney *route* to Queensland, where he has got an appointme in the Government Agricultural Department. Mr. Newt is an Entomologist, and his name came prominently befo the public in connection with the experiment in impo ing lady-birds from Queensland to benefit the coffee Mysore, Coorg, &c., by eating up the bug and oth insect pests. The experiment was not a successful ou

inasmuch as the beetles died on the way. It took Mr. Koebele some time to perfect the arrangements by which he was eventually successful in transporting the lady-birds to Hawaii and California. Very possibly, while in Queensland, Mr. Newton may be able to help the planters of India (and Ceylon) interested in coffee, if they decide to make another attempt to import the little enemy of the coccus-bug. It is not unlikely that the Queensland authorities have engaged Mr. Newton to advise about the infant coffee planting enterprise in their Northern territories in the Cairns and Mackay districts. Mr. Newton retains his membership in the United Planters' Association of S. India, and is likely to be enrolled as a member of the P. A. of Ceylon as well."

From first to last this is excellent. Mr. Howard O. Newport as "Mr. Newton;" he "retains his membership in the U.P.A.S.I.!" Truly, our planting friend in Colombo is getting behind the times. There is very little reason to doubt that Mr. Newport proceeds to Queensland as a Coffee expert, and we wish him great good luck. It was entirely due to his own diffidence or modesty that we did not announce his appointment when the news of it first reached us—a couple of months ago.

PARA OR CASTILLOA RUBBER SEED.

THE Secretary to the Government of Madras having asked the Colonial Secretary, Straits Settlements, for information as to the feasibility of importing genuine Para or Castilloa rubber seed from Singapore, the cost and the best mode of transport, the latter official replied that the Director of Forests, Straits Settlements, reported that there is no doubt that properly packed Para rubber seeds would retain their vitality until they reached the Anamalai Hills, provided there was no delay in transit. He added, however:—"As there is no other place in Singapore except the Botanic Gardens whence these seeds can be supplied, and as orders have been obtained from planters in these parts which comprise all the available stock for the next three years, it is evident that planters in Madras cannot look to Singapore as a source of supply in any quantity. In connection with this the Director of Gardens points out that Ceylon would be a more suitable place from which to obtain a supply of seeds than here, as in the first place it is nearer, and in the second place the trees from which the seed would be gathered would in all probability grow under conditions more similar to Madras than here. No seeds of Castilloa are obtainable here. The cost of Para seeds would be $1 per 100, excluding freight, &c."

Almost at the same time as the above reached us came Messrs. J. P. William & Bros' (Veyangoda, Ceylon) New Product Circular No. 32 on the subject of *Castilloa Elastica*, "the most valuable Central American Rubber Tea." The circular states that this Central American rubber tree thrives from the sea-level up to 3,500 feet, inundated places should be avoided, shelter required in strong windy situations, it grows to about 60 feet in height, cattle attack the young plants, ripe seeds are devoured by birds, the outer skin is sweet, all the trees do not bear seeds, and seed bearers do not exceed 10%, although all the trees flower twice a year, seeds cannot be expected yearly as crop fails. A sample of Castilloa Rubber from Ceylon grown trees has been valued in London at 2*s.* 6*d.* to 2*s.* 9*d.* per lb. in 1893. Trees tapped in the wet season are said to yield five times as much milk as in the dry. Instructions are given for raising and planting out plants, and on certain figures given by Mr. Hart, F.L.S., of the Botanical Gardens, Trinidad, it is estimated that a plantation of 500 acres would yield in eight years the enormous profit of £44,337 10*s.*, and the yield increases every year with no outlay except for weeding and harvesting.

INDIGENOUS LADYBIRDS.

IN view of the suggestion that indigenous *Coccinellidæ* should be collected in India, it is interesting to note the experience of Guatemala coffee-planters. In the Consular report for 1897 it is stated that toward the end of 1896 and throughout 1897 planters in the Alta Vera Paz district were much alarmed by the appearance among the shrubs of a destructive bug generally called the "chinche." These bugs were described as a kind of coffee phylloxera, except that they attack the branches and entire plants above soil rather than the roots. Many methods were suggested for destroying the insects, and one of the most favored plans was the introduction of other insects which prey upon the "chinche." Several specimens of the lady-bird were imported from California, whither they had been taken from Australia. The method of transportation is not stated, but we read:—"these insects were procured at considerable expense." The Consul-General of Guatemala in San Francisco was instructed to contract for the purchase of a quantity of these ladybirds, but the price demanded was so high that it was found impossible to prosecute this method. The Consul-General expressed the opinion that the proposed purchase was not only undesirable on account of the expense, but also unnecessary, as the same insects were indigenous to Central America, and were found in various parts of Guatemala, where they were known under the name of "tortolitas." An expert was accordingly appointed to examine into these questions, with the result that it was finally decided that the "tortolitas" were not in all respects the same as the ladybirds—which particular species of ladybirds was referred to is not stated—but that they did destroy the "chinche," which, after all, was the main point. It was also noticed that the "chinche" was generally accompanied by a fungus which destroyed it. So the importation of ladybirds from abroad was unnecessary. The British Consul observes that in conversation with one or two coffee-planters in the Escuintla district, he found that the "chinche" had made its appearance there also. The "tortolitas," however, were found fairly efficacious in destroying the other bugs, and what at first appeared a serious matter, is now regarded as giving cause for but little apprehension.

The hackneyed phrase "*et de te fabula narratur*" springs to the point of the pen as the above story is concluded. A word or two changed here and there, and we have a story that is probably applicable in regard to South India. At any rate, the above statements are suggestive, and clearly indicate that the U.P.A.S.I. is on the right tack, now that it is bent upon discovering the indigenous natural enemy or enemies of the abominable green bug.

COFFEE IN DISTANT LANDS.

I.

PRECISE information concerning the cultivation of Coffee in many of the less important producing countries cannot be obtained. Still, a few rough notes, the outcome of inquiries made through consular channels, may be of interest to planters in Southern India. If any of them can add to the information we now give, whether concerning one of the countries mentioned or some other not in our list, we shall be grateful.

Costa Rica.—Coffee is the staple article of cultivation, but no official reports or papers on its cultivation have ever been published there. Indeed, we learn that there is no recognized rule as to the best system of cultivation, but on the contrary a great variety of opinion among planters as to methods. The systems adopted with regard to shade, pruning, &c., differ considerably, and are, as is natural, influenced by the altitude and nature of the ground, and the age of the coffee.

Fiji.—Coffee-planting was started in this Colony about twenty years ago, but after a few years disease practically swept the European plantations out of existence. Lately, however, fresh attempts have been made with Liberian in a small way. The results are said to look promising. The Natives also have lately planted both Liberian and Arabian, so there may be more to tell about Coffee in Fiji a year or two hence.

Hawaii.—The export of coffee is small as yet—only 337,158 lbs. last year,—but last year doubled the year before; and it is proposed to appoint, at Government expense, a commission of experts to promote a knowledge of the best methods of cultivation, to watch markets, and so on. All this looks like business.

Madagascar.—Some years ago the Coffee trees planted in this island, especially on the East Coast, were devastated by *Hemeleia vastatrix*. For the last four or five years, however, coffee-planting has been having another try on the Coast, Liberian having been planted fairly extensively. This is found to be hardier than the Arabica, of which there are still trees in the central parts of Madagascar, in Imerina especially, in secluded places, shut in from the winds, especially the east wind, and generally close to villages, where they thrive pretty well and are kept up by all the dirt and refuse of the village. It is questionable whether Coffee would pay on a large scale, for the lands of the central parts of Madagascar are far from being fertile, and Manure is indispensable for the success of any agricultural undertaking there.

The Liberian is the Coffee fittest for the East Coast: it grows in almost all kinds of soil, and does not require manure and shade. The tree bears at the end of the fifth year.

However, Madagascar has to *import* Coffee, and is not likely to be able to meet her own requirements with her own production for many years.

Panama.—Cultivation only in an incipient stage, little or none exported.

Porto Rico.—Coffee is grown, but few details have yet come to hand, except that it forms the largest export, and is of a very high-class. About 90% of it is sent to Cuba, Spain and France. The cost of production is comparatively high, and considerable capital is required by the planter.

GOVERNMENT AND PLANTER IN CEYLON.

WHEN Sir West Ridgeway lately alluded to the planti industry in his opening speech in the Legislative Counc he gave an opening to planters of which they were n slow to avail themselves. He evidently wishes it to understood that he did this advisedly—we were nea writing "of malice prepense"—for he now states that thinks he went further than any other Governor in maki the admission that they might at sometime or other cla a reduction of railway rates if they proved three poin viz., that tea was in urgent need of relief; that the rel should take the form of a reduction of railway rates; a that the reduction of railway rates would assist the estat most in want of relief. Following this up, a deputation planters waited upon His Excellency on the 12th insta and submitted a Memorandum and a Statement, expressi the opinion of the Committee that certain reductions in t railway tariff on tea were necessary and should be press for. It was stated that the position of tea is in some re pects critical, and that economy and reduction of expen ture are necessary, wherever practicable. It was assert by one of the planters who spoke in support of t statement, that every planter can testify to cost of p duction having been reduced to the lowest level within t *planter's* control, short of starving estates, and that plante can also speak to diminished prices and reduced profi Now, they want a reduction in rail rates, just as th want a reduction in certain home charges. The Govern put some very pertinent questions with a view to eliciti precise information, and while speaking sympathetica naturally declined to make any offhand promises. Plante had touched upon the surplus shown by railway revenu which indeed seems to account for more than the wh surplus shown in the Colony's annual accounts. Sir We Ridgeway inquired somewhat suggestively whether t question of the urgency of relief for tea would have aris had there been no surplus! On the other hand, plante argued that without tea there would have been no surplu and, in short, their whole representation was to the effe that tea constitutes the State in Ceylon, and that as good times the estate supports the State, so in bad tim the State must come to the assistance of the estate. It a very pretty line of argument. One can hardly say h much the aid claimed means to each individual planter, per acre. Mr. Law said that to the people at Hatton it mea about Rs.5 per ton, to him personally something li Rs.400 per annum. The Governor consequently thoug that there was no real *urgency* about the matter, seei that the relief planters would gain would be so small. it is probable that planters will have to wait a little, pen ing the report of the Commission that is inquiring into t incidence of taxation.

It is perfectly open to His Excellency to argue that t cost of production of Tea in Ceylon has *not* been reduc to a minimum, seeing how much money various estat annually contribute in the shape of the Tea Cess. He mig reasonably say that planters should openly ask Governme to bear the cost of advertising Ceylon Tea abroad rath than reduce rail rates. But he no doubt sees that, matter how the application is worded, Ceylon planters a in effect applying for a bounty from the State. *Th* make it, and it cannot do otherwise than help them. We

not blame planters for taking this line, nor do we even object to their succeeding in getting what is wanted. At the same time, we cannot but feel that that industry is in danger, whose chief representatives feel compelled to rely on artificial measures of support. We see a Ceylon contemporary rejoicing because the anticipated import duty on tea in Canada will give India and Ceylon an advantage over China and Japan; we see planters asking for a reduction of rail rates without attempting to show that Tea is charged unduly high freights as compared with other articles. Yet these are the very men who complain bitterly of the artificiality of exchange. They are neither consistent nor logical in their reasoning; and when the Governor said their troubles were due to high exchange, he showed a wider appreciation of the truth than those who were trying to get an artificial incubus lightened by means of the introduction of artificial props. It is a pity, we think, that our neighbours did not concentrate all their energies on the currency war, and reserve the question of reduction of the railway tariff until the future currency policy of the authorities had been decided upon.

NOTES.

The Reduction of Crop. Mr. A. Cooke ("Sirocco") now wants planters in the North to occupy themselves during their "silly season" by considering what he thinks to be the most important of all questions, viz., the means of reducing the crop of tea!

The Calcutta Tea Sales. The average price realised at the sales of the 9th instant was 5as. 4 pies. About 14,000 were offered on the 16th instant. The market was firm for all descriptions, and Souchongs showed a rise of from 1 to 2 pies.

Soil Analysis Free. With reference to what we wrote last week, Mr. A. Baur, of the Ceylon Manure Works, informs us that he undertakes to execute soil analysis free of charge for both Ceylon and South Indian planters whenever a trial is made with his Fertilisers.

The Colombo Tea Sales. At the public sale at Colombo on the 14th instant, about 11,126 packages=871,300 lb. were offered, and about 8,432 packages=661,150 lb. sold. The tone was irregular, prices much the same as the previous week, except for common and medium Broken Tea, which were slightly easier.

To South Indian Planters. See to it that the following words of a British Consul do not become applicable to you as well as to British merchants:—"British firms nowadays seem to expect to have markets found for them instead of finding them for themselves as in the past."

The Life Plant. There is a plant in Jamaica called the life plant, because it is almost impossible to kill it, or any portion of it. When a leaf is cut off and hung up by a string, it sends out white, thread-like roots, gathers moisture from the air, and begins to grow new leaves.

Coffee in Queensland. It appears that there are only about 311 acres of land under Coffee in Queensland, but that many inquiries from over-sea have been made concerning land suitable for coffee-growing at Mackay and in other parts of tropical Queensland. There were also people at Mackay lately on the look out for coffee-lands, and it is confidently expected that before long the neighbourhood will be a great district for the cultivation of coffee.

Tea. *Capital* remarks:—We observe that a meeting has been called to wind up the Central Terai Tea Co., and we hear that the Mattigurrah Tea Estate was sold by auction on Tuesday for Rs.3,300. Tea gardens are evidently going cheap. We hear that about forty gardens cannot get their outlay so far financed; the banks, we think, are very wisely limiting their liabilities in this direction.

The London Tea Market. Cabling to Colombo on the 15th instant, Messrs. Gow, Wilson and Stanton reported that the market generally was unchanged. The price of Pekoe Souchong was unchanged at 6½*d.*, the average a farthing down=8*d.* Reuter reported that Ceylon Teas were firm at previous rates, but his average—8⅛*d.*—showed a drop of ⅛*d.* Of 21,000 packages offered, 19,000 were sold. On the other hand the average of Indian Tea—8⅜*d.*—showed a rise of ⅛*d.* and 31,000 packages were sold out of 35,000 offered.

Cacao Crop Estimates. The Northern Planters' Association of Ceylon has resolved:—"That the Parent Association be asked to adopt measures to obtain information from other countries regarding the present acreage and extensions of cacao and other low-country products, their cultivation, diseases and blights known, estimates of crop, etc., from the Consuls, Chambers of Commerce, and Agricultural Societies in their respective countries; and to ask that a permanent Cacao Sub-Committee of the Association be appointed."

Thanks to the Blenders! A visitor to England, after an absence of some years, makes the following remarks as the result of his observations in regard to the taste for tea in the old country:—"One thing I have to note. It is observed that the taste of tea has much deteriorated in England notwithstanding the enormous quantities consumed and all the facilities for obtaining good teas. To whom do we owe such state of things? To the 'Blenders'! It is a problem in many households where to go to find good tea, and that is a remark I heard set forth by many people." This raises once more the question of the ousting of the middleman.

Cacao in Samoa. The cultivation of Cocoa in Samoa is an accomplished fact now, and Cocoa is taking the place of Coffee in the islands, and is thought to have a future before it. A great deal has been planted in and around Apia as well as in more distant parts of the group, and the growers confidently predict that this crop will prove to be the staple export of Samoa. Several tons have been exported already, and heavy crops are being produced. It is estimated that not less than 75 acres of

land are planted with cacao now in bearing; and no "enemies" have yet made their appearance.

Coffee in October. Movements were lighter than usual this year, especially in the United States. This, as the *American Grocer* remarks, seems to be confirmatory of statements made during the consideration of the proposed tax on coffee—that a large quantity of coffee was withdrawn from licensed warehouses in anticipation of the tax, and that dealers everywhere carried unusually heavy stocks. The world's total visible supply on November 1 was the largest on record, and about equal to one-half of the world's maximum production in one year. However, the receipts at Rio and Santos for the first four months of the present crop year were 4,264,000 bags, which is 1,074,000 bags less than in the like period of 1897.

Close Plucking. The East Cachar correspondent of the *Planter* has the following sensible remarks on this subject. He says :—"There is, or ought to be, no rule of thumb in such matters, and what suits Darjiling may not suit the Duars, what pays South Sylhet may not pay Upper Assam. Even on gardens in the same district it may be unadvisable to have an identical style of plucking, manufacture, and general working. As regards close or fine plucking,—although . . . . . the two terms are not synonymous—it must never be forgotten that the great bulk of our teas are consumed by the British lower classes and lower middle classes : the palates of those are not very refined; and even granted the same price, they would as soon drink Cachar Broken mixed as Darjiling Orange Pekoe. But the question of price is to them a very important matter."

The Depression in Tea. A Calcutta correspondent records as showing the extent of the depression in the tea industry, a certain sale of a tea estate. On the 13th instant Messrs. Mackenzie, Lyall and Co., under the order of the proprietors, sold by public auction, without reserve, the valuable tea estate known as the Mattigurrah Tea Estate, as a going concern as from the 1st January next. The estate, which is situated below Darjiling, comprises an area of about 570 acres, of which about 346 acres are under tea cultivation, held under a renewable Government *pottahs*. The outturn for the past season was 93,292 lb., and the estimated outturn for the current season is 120,000 lb. The bidding started at Rs.1,000, and gradually rose to Rs.3,300, at which low figure the estate was knocked down to Mr. Smallwood, of Messrs. Davenport and Co., Calcutta. The number of bidders was very small.

"The Enterprising Grocer." The *Daily Mail* is responsible for publishing a letter in which quite a new phase of the "given away with a pound of tea" movement is recorded. The story refers to a *West-end* grocer's, where a customer was informed by the young lady behind the counter that if the purchase (of Tea) were made up to a pound weight, the customer "could step into the parlour and have a tooth drawn free of expense." A new field of enterprise, indeed. Not only for the grocer but for the comic press. It opens out wide fields for speculative and philosophic thought, and wh continents for the advertiser: "Our new blend: Pain wi Pleasure neatly blended." "Toothsome Tea and no Toot ache." "Our new Tea can be conscientiously reco mended to all but the Toothless!" and so on. If t Co-operative Coffee-planter can but go one better, the may be a hope of success even for co-operation in retail.

Green Bug in Coffee and its Cure. A correspondent sends the *Ceyl Observer* an extract from "D Echo" (translated from the Germa giving a cure for the green bug :—"According to a pre minary report, Professor A. Zimmerman, of the Botan cal Garden of Buitenzorg, has discovered upon the gre bugs of the coffee a fungus which causes their epidemic death. This fungus is easily cultivated upon the pla Ogar-Ogar so as to obtain a sufficient quantity of spor to propagate the infection on a large scale. Profess Zimmerman recommends to touch the bugs with a bru which has been dipped in the culture of the fungus la in the afternoon on plants which are out of the sun's ray After four days the new growth can be seen with t naked eye." It is to the interest of coffee planters of oth countries to study this fungus which they can procure fro Buitenzorg. This is another instance of the importance scientific investigation.

Tea and Coffee. The *Medical Times* observes:—Te and Coffee seem to be much alike many respects, but the latter is generally preferable as to i sustaining power. It would be a great advantage to o working classes, and a great help toward the furth development of social sobriety, if coffee were to come in greatly increased use, and if the ability to make it we could be acquired. As an example of the difference of th effect of tea and coffee upon the nerves, the writer not that it is far better to drink coffee than tea when shootin Tea, if strong or in any quantity, especially if the individu be not in very robust health, will induce a sort of nervou ness which is very prejudicial to steady shooting. Und its influence one is apt to shoot too quickly, where coffee steadies the hand and gives quiet nerves. All th is true, no doubt, but Coffee has its disadvantages als Many people find it too heating and too stimulating, whi on the other hand the sustaining powers of Tea are n done justice to in the remarks of our medical contemporar

The Canadian Preferential Tariff. Some curious facts have bee mentioned in regard to the effe of the preferential tariff upon th import of dry goods into Canada. It appears that for th three months ended September, 1897, the imports amounte to $5,5917,305, for the corresponding period of 1898

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$7,904,129, an increase of nearly $2,500,000, or over 40°/ . On the other hand imports of articles on the free list—including Coffee and Tea—showed a total decrease of nearly $1,000,000, or nearly 40°/₀ ! It is to be hoped that Tea (and Coffee) will now find salvation in the duty that is expected to be imposed. By the way, commenting on the probability that the Dominion Parliament will impose a 5 cent duty on Tea, which will give Indian and Ceylon Teas an advantage of something like $\frac{5}{8}d.$ per lb. over foreign sorts, the *Times of Ceylon* remarks:—"Subject to the condition that an equivalent tax is intended on coffee—which if not proposed should be vigorously petitioned for by the P. A. and the local Government—we welcome the new tax." In fact, our contemporary regards it as meaning "the beginning of the end for China and Japan teas in Canada."

"Lantana," Limited.

To Mr. John Cameron, the Superintendent of the Mysore Government Gardens, is due the establishment of this concern in Bangalore. It is incorporated under a by-law of the Bangalore City Municipality providing that the growth of Lantana within Municipal limits shall be kept under control. Mr. Cameron drew attention over a year ago to the extensive growth of *Lantana Camara* in Mysore, and observed that while the shrub served a useful purpose if kept in its proper place, it should only be admitted with much caution and to a very limited extent where the soil is already fertile. It is a hardy plant, and its seeds are spread far and wide by birds. Like the prickly-pear, too, it takes a good deal to fairly eradicate it. An attractive and protective plant, it makes a good bid for popularity, but the fiat has gone forth, and for the future its growth is to be limited in Bangalore. No doubt similar measures will probably be taken in other parts of Mysore, so that we may expect soon to see "Lantana, Limited," opening numerous branches and throwing out "suckers and seedlings" as vigorously as the plant itself does.

Spencer and Company, Limited.

In submitting to the ordinary shareholders their report upon the working of the business for the year ended 30th June, 1898, the Directors have much pleasure in reporting that there has been a steady improvement in the returns of every Branch of the business with the exception of the Bangalore Branch, where, owing to the removal in August, 1897, of the troops from the station in consequence of the late war on the North-West Frontier, there has been a reduction in the volume of business. The net results, however, of the whole business show a very satisfactory increase in sales. The result of the year's working shows that, after making a full allowance for depreciation on buildings and on furniture and plant, after writing off one-fifth of the preliminary expenditure, and after providing an ample reserve for bad and doubtful debts, there is a net divisible profit of Rs.3,31,784-4-7. The following payments have been made out of this sum in respect of dividends on the Preference and Ordinary Shares—

	Rs.	A.	P.
3 °/₀ on the Preference Shares for the half-year to 31st December, 1897, paid on 17th January, 1898 ...	20,518	10	9
3 °/₀ on the Preference Shares for the half-year to 30th June, 1898, paid on 16th July, 1898	29,724	11	9
Paid to Preference Shareholders...	50,243	6	6
5 °/₀ Interim dividend on the Ordinary Shares for the year, paid on 16th July, 1898	75,000	0	0
Divided...	1,25,243	6	6
leaving still available for division	2,06,540	14	1
	3,31,784	4	7

Out of this the Directors propose to pay a further dividend of 5 °/₀ on the Ordinary Shares, absorbing Rs.75,000 (making a total division of 10 °/₀ on this class of shares), leaving Rs.1,31,540-14-1 still to be dealt with. The Directors suggest that a bonus of one month's salary be granted to all the employés of the Company who have served during the whole year, amounting to Rs.13,150-0-0 and leaving a balance of Rs.1,18,390-14-1 to be carried forward to next year. As the whole of the Preference Share Capital was fully paid up prior to the 30th June last, the future charge on Revenue for the dividends thereon will amount to Rs.30,000 for each half-year. And the Directors point out that the balance of this year's profits to be carried forward is considerably more than sufficient to pay the dividend on these shares for the whole year ending 30th June, 1899. In congratulating them and the shareholders on these results, we may observe that the figures given fully justify the anticipations expressed when the Company was first floated. Excellent management for many years past was, in fact, a guarantee of future success; and that management, we are glad to say, continues.

COFFEE SHADE TREE.

Sun-dried Erythrina Lithosperma loppings, &c., contain per ton:—

61·50 lbs. Nitrogen.
57·38 „ Potash.
14·92 „ Lime.
13·68 „ Phosphoric Acid.

Seed cured under Messrs. Sutton and Sons' advice.

Orders should be booked early for the 1898-1899 crop of seed from the parent trees of above analysis at Rs.6 per pound containing about 2,000 seeds. *Germination guaranteed.*

Only thornless variety extant, and is not procurable anywhere save from the

MANAGER, ARIENKOW ESTATE,
Shencottah.

LETTERS TO THE EDITOR.

"WANTED TO KNOW."

SIR,—With reference to "KARTARY's" statement that he gets

33 bushels parchment,
3 „ tails,
3 „ light,

39

out of 39 "boxes" of cherry, it would be interesting to know what the size of his "box" is. If it is anything like a bushel, what becomes of the "husk" or "sippy"? The "box" must evidently be something nearer two bushels. I measure my cherry and parchment both in the same Imperial bushel measure; the cherry "piled" and the parchment "struck."

Out of 50 bushels cherry I get 24 bushels parchment, $\frac{1}{2}$ bushel tails, and $1\frac{1}{4}$ bushels light. This is copied from an entry in my crop book on the 8th instant.

Does "KARTARY" consider this a bad percentage?

"VERITE."

RINDERPEST.

SIR,—In the *Madras Mail* of the 6th instant, I see that the Ceylon Government Veterinary Surgeon, Mr. G. W. Sturgess, has been inoculating cattle for rinderpest with bile, and states that the operation is simple and effective, and the bile easily procurable. Will you or any of your readers kindly let me know how to procure the bile, and how to perform the operation?

I am surrounded by ryots whose cattle periodically get swept away by rinderpest, and I might, if I could learn how, be the means of saving not only my own, but their cattle for them.

KADUR DISTRICT,
18*th December*, 1898. } D.

CO-OPERATION.

SIR,—A combination of adverse circumstances during the past few years, viz., the rise in exchange, a series of bad seasons, and last year a smart fall in prices, has caused a certain wholesome brisking up among planters. The first signs of this were a distinct drawing in of the horns with regard to unremunerative expenditure, and a determined effort to make such outlay as was necessary as beneficial, and as little wasteful, as possible. A want of knowledge, however, was felt, and a cry went up for the casting of more scientific light on agricultural methods. This resulted in a much wider section manuring in accordance with deductions from soil analyses, and in the Mysore Government appointing an Analytical Chemist for the Province. An article, too, in this paper urged more economical methods, and a systematic attempt being made to establish new markets for our products. And now one of the District Associations has come forward with a proposal for co-operation. This idea is worthy of the serious consideration of all coffee platners, but it is to be regretted, as the *Madras Mail* remarked, that the proposers have not formulated some scheme as a basis on which discussion could take place. As the matter will no doubt be engaging the earnest attention of planters during the next few months, it may not be out of place to briefly review a few points in connection with it.

And let us first consider the area which such a scheme should cover. Should it, as the *Madras Mail* seemed to indicate, undertake the care of the bean from the time it leaves the plantation till it appears, in another form, on the breakfast table? Or should it confine itself to a smaller sphere? The question of capital is here involved. An agency to conduct all the operations between despatch from the estate and delivery to the consumer would necessitate a supply of funds on such a scale as would be exceedingly unlikely to be forthcoming. It would seem desirable, therefore, at first to limit the functions, and with this in view we must first determine in which departments there is most scope for economy. The Shevaroys Association evidently regards *distribution* as the vulnerable point, and proposes that an Agency to promote the sale of coffee, wholesale and retail, should be established. A slight knowledge of the trade in London is sufficient to make manifest that great economies might be effected. Coffee passes through many hands, each of which secures a profit to itself. First, there are the wharfingers' charges, with their huge discounts, which the unfortunate producer does not always participate in; then the selling and buying brokerages, the wholesal buyer's profit to the retail-man, and the latter to th consumer. Beyond these the merchant's commission, whic by no means always represents the whole of his charge Six profits before the article reaches the consumer! N wonder there is little margin left for the producer! Bu the greater evil is that the high rates necessitated to cove these profits checks consumption, and puts coffee beyon the reach of the poor man. Whereas could we do awa with them, we might place it in his hands at a rate at whic he could afford to drink it *ad libitum*, and at the same tim make a better return than we do at present.

The advisability, therefore, of co-operation is apparen but such could only be effected by degrees, and we shoul have to proceed with great caution so as in no way t prejudice the article. There would doubtless be grea difficulty experienced in directing the different qualitie into the corresponding consuming channels, and as ther would be the strongest opposition in Mincing Lane, n help could be looked for from that quarter. A co-operativ agency could give immense stimulus to the sale of coffe by selling the *pure* article, and an equal check to adulter ation. A few simple instructions, or some practical lesson in the making of a good cup of coffee would also tend t increase consumption. In few establishments is a cup f to drink ever served.

Difficulties must of course be expected in connectio with any new scheme, especially with one which, if success ful, might revolutionise a particular trade. The findin of the necessary capital may prove to be one, and anothe will be the fact that many coffee planters are, so to speak, i their Agent's hands, bound to send their produce to ther to be cured and sold. A larger scheme *may* loom som day which would involve the proposed Agency acting a Bankers as well as curers, merchants, and brokers, bu till it does, the unfortunates so bound won't be allowe to co-operate.

For the present we commend the smaller scheme, an wish it every success.

"MOTOR."

GENERAL ARTICLES.

DAILY TELEGRAPHIC REPORTS.

LONDON.	*Dec.*	16.	17.	19.	20.	21.	22.
Bar Silver	...	27½	27 9/16	27½	27 7/16	62 5/16	27⅜
Bank Rate	...	4%	4%	4%	4%	4%	4%
Coffee—							
Nilgiri, ave. (B) size.		64	...	...	64	64	...
Mysore „ (B) „		75	...	...	75	75	...
Middling Ceylon		103	...	...	103	103	...
Fortnightly Landings	tons	...	...	...	...	600	...
„ Deliveries	„	...	...	...		1,400	...
NEW YORK.							
Coffee—Fair Rio ...		6¾	6¾	6¾	6⅞	7	7
Futures, Mch.		5.55	5.54	5.50	5.48	5.47	5.50
Silver—Comml. Bars		59¾	59¾	59¾	59½	59½	59½

MILLIE & REDMOND, late P. THOMPSON & CO., *Ootacamund, Engineers and Contractors.*

TEA UP NORTH.

THE number of tea gardens continues to increase in the Jalpaiguri district, though in the Darjeeling district they have remained stationary for the past three years. The area under both mature and immature plants continues to increase in both districts The gross yield amounted to 35,827,572 lb., as against 34,173,794 lb for the previous year; but owing to the insufficient rainfall at the commeneement of the season the average yield per acre fell from 403 lb. in 1896 to 376 lb. in 1897. The large increase in output has brought down prices to a level which leaves but a small margin for profit. The tea gardens in these districts receive their coolies principally from Nepal and Chota Nagpur, and the number employed is steadily increasing with the extension of cultivation and the opening out of new gardens. The number is always fluctuating, as the coolies come with the commencement of the season and return to their homes after the busy season has passed: those from Chota Nagpur often settle permanently in the Duars.—*Indian Planters' Gazette.*

CHINA'S RIVALRY.

IF those who regard with trepidation the occasional rumours of the revival of the China tea trade will study the past history on this subject, and carefully scan the consular reports, they will not fail to see the fallacy of "conjuring up demons for the pleasure of fighting them." The most up-to-date and reliable information tends to endorse the opinion we have so frequently paraded that, John Chinaman is rapidly substituting more remunerative crops for tea, though so long as a profit can be screwed out of the patches under that cultivation, he is loath to abandon it; but when the case is hopeless, and he sees that no amount of stimulation will retrieve matters, his inborn conservatism yields and attention is directed to other matters. Most of the small tea farmers in the China tea districts are intelligent agriculturists enough, fully capable of judging when soil is worn out; also, though well aware that goed seed is procurable comparatively close at hand, are quite cognisant of the truth of "the effects of putting new wine into old bottles," and this conviction, more than anything else, has led to the steady decadence of the China tea trade.—*Indian Planters' Gazette.*

TEA PROSPECTS IN ASSAM.

THE following telegrams have been received by Mr. J. Buckingham with reference to Tea Prospects in Assam:—

Mr. St. George Showers, Cinnamara:—"Prospects bad, expect finish 20,500 against 19,500 last year."

Mr. C. Forbes, Badlipar:—"This district promises to make eight to ten per cent. increase in crop."

Mr. F. Lloyd, Bindukuri:—"Tezpur gardens, some ahead, some behind, on average district will make original estimate."

Mr. W. H. Lyall, Nowgong:—"Nowgong crop will be about 10 per cent. short, prospects very moderate."

Mr. C. J. Showers, Moriani:—"Crop prospects unsatisfactory, gardens generally going behind."

Mr. J. E. Percy, Golaghat:—"Watson England prospects fairly good, much better than last year."

Mr. W. St. John Mildmay, Luckwah:—"The prospect for this season seems to be fair, but the original estimates are not likely to be realized, though a slight increase on the total output of last season may be confidently looked for, although the aggregate will be considerably under the original estimates."

Mr. John Alston, Talup:—"Your wire 28th, crop in proportion to date somewhat under estimates, and now there is every indication of early close."

Mr. V. R. Butler, Suffry:—"Letter 28th instant, prospects tea fair, outturn prices poor, seed medium, altogether better than last year."

Mr. J. A. H. Jackson, Dibrugarh:—"November promises rather better than 1897, total outturn about equal 1897."

Mr. W. A. Hudson, North Lakhimpur:—"We are shutting up very fast in the district and losing steadily on last year all round."

Mr. E. P. R. Gilman, Kamrup:—"Kamrup slightly ahead, prospects good for final ending."

Mr. E. Scarth, Kolaigaon:—"Original estimate of crop likely to be exceeded, revised estimate of crop shows some increase, owing to later rain the season may be slightly prolonged, crop prospects generally are favourable."

Mr. C. E. Stuart, Bishnath:—"Increase will be eleven thousand maunds, season closing late."

AN OUTLET FOR INDIAN TEA.

THUS the *Planter*:—

The first and foremost desideratum for Indian tea is a *new market.* Where are to be our outlets? There is no reason to believe that the expansion of the English market will keep pace with the increasing production of tea. The imports of tea into England from India alone are close upon some one hundred and fifty-nine millions of pounds this year. If we suppose the same rate of development to continue as has obtained hitherto, who can help seeing that the supply required by the English market will be more than covered by the produce of other countries, such as, for instance, Ceylon alone, and that if India is to enjoy the advantage of even a part of the demand, it will only be on the condition of diminished cost of production. A new market, then, is the thing really wanted in order to save Indian tea from its precarious position. Something might surely be done towards discovering such market at our own doors, viz., in Thibet, to which country great attention is being drawn at present, especially by our leading organ in Bengal, the *Englishman.* The subject is not a new one, nor has much fresh light been cast upon it recently; but old facts have been brought to mind which it is, perhaps, worth while to reiterate. A correspondent, well acquainted with the facts, supplied the following information to a contemporary some few years ago. The Deputy Commissioner of Kamrup is obliged to pay an annual visit to a triangular promontory of British territory in the Bhutan hills, which we have held as a material guarantee since the last Bhutan War, and which is known to us by its Assamese name of Dewangari, but the Bhutias call it Dongsam. Hither the Bhutias come to the number of some thousands in February and March in each year to exchange blankets, lac and wax for the rice, and brass and copper ware of the plains. The Deputy Commissioner noticed their universal practice of drinking large draughts of tea, and on asking for the commodity in its merchantable shape he was shown the veritable *Brick tea* of China, in blocks weighing about 4½lbs. wrapped in paper bearing the Chinese mark. Such a block in Dewangari was worth four rupees, though the tea is of the coarsest description imaginable, and consists, in fact, entirely of prunings, the leaves being large, old and stringy, and intermingled very freely with twigs. An article of equal goodness could be prepared by Assam tea-planters from the refuse of their gardens and offered for sale at Devangari for a few annas a pound.

The making up of refuse tea in this brick shape is just one of those little departures from established custom which it is difficult to get effected, but which, when effected, produces surprising results. When will those interested in the industry wake up to the fact that we have not only this, but many other outlets at our very doors?

WILL YOU HAVE A CUP?

NOVEL WAYS OF PREPARING TEA IN VARIOUS COUNTRIES.

DURING the summer I was travelling far north, where I was the guest of a Swedish lady. She made the most delicious tea, for which she paid something like 10s. a pound. It was carefully strained so that not a bit of leaf came into the cup, and when I told her that we did not strain ours in England, she said she thought it could not be at all nice to find tea-leaves in one's tea.

In Russia I met with tea served in glasses without any milk, but with a slice of lemon instead. It was strained tea, and not strong, and I noticed that it was drunk constantly by the people, with or without anything to eat.

What a number of strange teas a woman of enterprise could inaugurate to amuse her friends? There might be a Uruguayan mode of tea drinking introduced. The tea of that country would be used, prepared like Chinese tea, but with the drinking would come the really entertaining part of the affair. There would be something far removed from the hackneyed in the sight of a group of guests drinking tea through silver tubes, each of which had at the end a ball-like strainer, known as a bomba or bombilla. Little wonder if this tea were pronounced quite a success.

Then there might be a mandarin tea, in which a large artistic cup would be set in a brass or silver holder. In this cup the tea would be placed and covered with boiling water. The process would be continued by the placing of a little saucer inside the cup in an

inverted position, the saucer being of such a size that it just fitted the cup and kept in the steam and flavour of the tea. When the tea was drawn it would be poured from the big cup into dainty little ones no larger than an eggshell.

A Java tea, served in broad, flat cups and flavoured with Batavia arrack, might follow, and might give place next to a Formosa afternoon, in which the tea would be steeped with tea flowers and one or two orange flowers. The result would be a perfume and flavour of the most intense kind. One of the guests would certainly remark that they were not drinking tea so much as wedding bouquets.

A girl who had spent a winter in the West Indies introduced the plan in vogue in Martinique when she reached home again. The tea cup she employed was narrow and rather deep, resembling the old-fashioned lily cup. An aromatic tea was used, and a peculiar liquor made by the monks and by the old French housewives was added. Who will set the fashion for queer teas?—*Daily Mail.*

THE PRESENT POSITION OF THE TEA-PRODUCING INDUSTRY.

WE give somewhat late the following extract from a letter to the *Home and Colonial Mail* by Mr. John McEwan :—

The market prices of tea are undoubtedly lower than ever, but that was a result clearly foreseen by many, and only in keeping with the experience of the last twenty or thirty years. It was anticipated and provided for in most cases by extensions which were designed to increase the yield, and so to maintain the net revenue.

History has repeated itself in tea, as in other matters, and every general decline in price has been followed by an increased consumption. During 1898 the increased consumption of Indian tea at home and abroad has been on a larger scale than ever before in the history of the industry, and there is no doubt now that within the year much more will be consumed than has been produced. There is little need to agitate for new markets. The largest and best of those have opened up themselves through the ordinary channels of trade, and every possible outlet in new directions is closely watched by practical distributers eager to widen their connections. It is merely a question of price, and lower values have done more in the last twelve months to increase the sale than the efforts of special missionaries in as many years. The remarkable point about the increase is that it has taken place chiefly in quarters where no special efforts have been made—except by ordinary traders—to push British-grown teas. This fact may suggest to the Associations in Calcutta and Colombo the advisability of withdrawing their commissioners and devoting their attention and funds in other directions. If they still consider it necessary to appeal for voluntary, or to collect forced levies, let them apply the money raised to some scheme having in view the improvement of quality, and the reduction of the quantity of inferior tea.

The position is gradually modifying, as it has done before. Unprofitable estates, or sections of such, are being abandoned; expenditure is being more closely watched; greater efforts are being made to produce tea of good quality, with the result that there is some reduction in the quantity made. The abnormal weather conditions referred to above have doubtless restricted yields, and there is much reason to be thankful. One of the most serious risks ahead is that of a "bumper crop" coming simultaneously in India and Ceylon before the volume of consumption has advanced sufficiently to absorb easily the yield.

Some cranks may take the advice given them by one writer and destroy good sound tea by making it into Oolong or green, and they will be wiser after the event, but anyone with an expert knowledge of tea who expects Indian unfermented teas to drive out Japans is only fit to herd with those who for the last ten years have been shouting the parrot-cry, "Capture the American market."

In conclusion, let me repeat the advice to investors and producers, not to allow themselves to be influenced by anonymous scribblers, but rather to consult experienced tea or share brokers, who have an expert knowledge of the producing and distributing conditions of the great tea industry.

EXPORTS OF INDIAN TEA FROM CALCUTTA.

THE General Committee of the Indian Tea Association have issued their Monthly Return of Sailings and Daily Customs Entries of Tea from Calcutta, and also a Return of Export of Ceylon Tea for fou years up to the 22nd November, 1898, as follows :—

	1898. lbs.	1897. lbs.	1896. lbs.
Sailings to Great Britain in November	21,791,996	20,698,850	19,220,18
Sailings to Great Britain from 1st April to 30th November ...	108,709,973	104,069,165	102,963,77
Sailings to Australia and New Zealand in November	1,231,448	264,575	873,69
Sailings to Australia and New Zealand from 1st April to 30th November	4,337,059	4,183,172	3,876,35
Sailings to America in November ...	*640,195	524,721	604,03
Sailings to America from 1st April to 30th November	2,336,432	1,758,784	1,680,33
Sailings to other places in November (see below)	1,100,852	872,245	754,52
Sailings to other places from 1st April to 30th November ...	6,835,874	3,405,627	3,865,24
Total sailings from 1st April to 30th November	122,219,338	113,416,748	112,385,70

Daily Customs Entries for Export to Great Britain from 1st April to 30t November, 1898 ... ...111,081,733 lbs

Daily Customs Entries for Export to Great Britain from 1st April to 30th November, 1897 ... ...107,091,128 „

EXPORTS OF TEA FROM CEYLON.

	lbs.
Total Export from 1st January to 22nd Nov. 1898	104,985,013
„ „ „ „ „ 1897	100,269,688
„ „ „ „ „ 1896	93,920,996
„ „ „ „ „ 1895	85,219,441

* Exports to United States ... ... 299,488 lbs.
„ „ Canada ... ... 340,708 „

Statement showing the Exports of Tea to Sundry Ports during the month of November, 1898.

FOREIGN PORTS.

	lbs.	
Trieste	330	
Havre	500	
Marseilles	105	
Hamburg	30,995	
Bremerhaven	3,400	
Gottenburg	2,205	
Copenhagen	3,300	
Constantinople	101,797	
Port Said	15,215	
Suez	3,061	
Mauritius	80	
Aden	3,670	
Hong-Kong	98,879	
Bunder Abbas	18,135	
Bushire	89,645	
Linga	500	
Shanghai	250	
Penang	340	
Singapore	2,820	
Bankok	12	
Bagdad	2,520	
Bassorah	57,880	
Beyrouth	1,425	
Trebizonde	153,290	
		590,354 lbs
Indian Ports		510,498 „
Total ...		1,100,852 „

AN AVERAGE OF A SHILLING.

A PROMISING OUTLOOK FOR TRAVANCORE.

IT is so unusual for an estate's tea to average a shilling per lb nowadays, that when this does occur, it may be safely assumed tha a very good article has been produced. Such a satisfactory pric has recently been obtained in Calcutta for Munaar teas, as the resu of a series of experiments by a well-known Darjeeling tea expert— Mr. R. R. Landale—who has of late been more intimately connecte with the Doolaria estate in the Kanandevan District, Travancor

where Messrs. Finlay, Muir & Co. are the owners of some 10,000 acres of land. Mr. Landale arrived at Colombo from Tuticorin on Friday for the purpose of seeing some of Messrs. Finlay, Muir & Co's up-country estates, but a Director's request that he should forthwith put in an appearance at Glasgow has considerably altered his arrangements, and his up-country visit will only extend to Thursday, when he leaves for Scotland. Mr. Landale has had 24 years' experience as a tea expert in India, a considerable portion of that period having been spent on a Darjeeling estate—which also belongs to Messrs. Finlay, Muir & Co.—while more lately he has put in his time at the Kanandevan Estates, Travancore.

In answer to questions by one of our reporters, he said that the Kanandevan Tea estates comprised about 10,000 acres. They were all comparatively young estates, and only for a short time had tea been made there. The elevation of the gardens varied from 4,000 to 6,000 feet, the temperature consequently being low. Tea was made in the usual way until a few weeks ago, the average realised for the last consignment of tea being 8¼*d.* Mr. Landale did not feel satisfied with this figure, and had the impression that a great advance in quality of tea might be brought about by an improvement in the method of manufacture. He immediately commenced a series of experiments at the Munaar Factory, which is fitted throughout with electrical appliances, with tippings from a heavy prune. First of all he tried the Darjeeling mode of manufacture, but ascertained that that was not suited to the Munaar teas, and so turned his attention in other directions. The teas resulting from each experiments were submitted for valuation, according to which Mr. Landale gauged the succeeding experiment. At length, after surmounting considerable difficulties that we have not the space to detail here, he succeeded in producing a tea from various high class jats under the name of Munaar, which both at Colombo and Calcutta was valued at a shilling per pound.

Having got thus far the *Times* representative asked the perhaps unnecessary question whether Mr. Landale attributed the high price obtained solely to the process of manufacture, to which he unhesitatingly replied in the affirmative, and so he saw no reason with the continuance of that mode of manufacture why the teas should not always average 11*d.* or 1*s.*

"That will have a great influence on the tea market?" queried the interviewer.

"Yes," said Mr. Landale, "it will. It will also mean a great thing for Messrs. Finlay, Muir & Co., who have sunk a lot of money in these estates which comprise the whole of the high range. An average of 8*d.* might give them a profit, but the difference between 8*d.* and 11*d.* or 1*s.* means the difference between a good speculation and an indifferent one."

Questioned as to probable yields, soil, seed, and so on, Mr. Landale said he had never seen such luxuriant and healthy tea without blight in the second year, and for that circumstance he attributed the combination of a friable soil and suitable climate. The seed was all high-class, and came from the best gardens in Ceylon and India. The approximate yield was from 500 to 600 lbs. per acre, and when the whole 10,000 acres were in full bearing, in three or four years' time he estimated that they would be able to put at least 5,000,000 pounds of tea per annum into the market, and, if such good tea could be made after heavy pruning, there was every probability when they got two or three years from the prunings that still better tea would be produced.

Asked how he thought the Munaar teas compared with the best Ceylon growths, Mr. Landale said he had tasted a hundred samples of Ceylon tea that morning, and the Munaar tea, in his opinion, compared very favourably indeed, and could enter into competition with the products of the best Ceylon gardens and good Darjeeling growths.

Upon the matter of transport being broached, Mr. Landale stated that the Kanandevan estates laboured under considerable difficulties in that respect. Between the estates and the coast the ghauts rose to a height of 8,000 feet, with a sudden big drop, and then there was level ground to the sea. Bullock waggons were the means of transport adopted where possible. Cochin had not been used so far, but there was a talked-of single tram line from the estates to Ammanayakanur, at which point the South Indian Railway could be utilised. A tram line would be of immense benefit with the estates, Mr. Landale said as the interview concluded, and in addition to the other evident advantages in the matter of transport, the hundreds of bullock carts used to convey rice for the coolies would be dispensed with, and much quicker means of carriage obtained.

CARDAMOMS.

A WRITER in the *Planter* says:—

This is a profitable planting product cultivated where conditions are favourable. The spice commands a good price, and is always in demand. A large degree of moisture is necessary, and, hence, only Malabar and Coorg grow it to perfection. In the latter province, till a recent date, it was a Government monopoly, the price paid the producer by the State being sometimes as low as 25 per cent. of the selling price of the commodity, and the regulations imposed on the landholder not different from those prevailing in Java in reference to coffee at the present day. The Coorg now sells his cardamoms in the open market and often makes a very good thing of it. There is a tradition, though how it originated and why it continues to be acted upon is unknown, to the effect that the plant is spontaneously produced by the concussion occasioned by the falling to the ground of a large tree felled over it. Accordingly, on securing the grant of a suitable bit of forest, the male members of a Coorg family proceed to the spot and select a patriarchal giant, which they proceed to cut down, after clearing the surrounding scrub and brushwood. The felling must be completed before sunset on the day it is started, or the garden will, according to native ideas, prove a failure. Of course the spontaneous theory is fallacious and the plant in the locality is indigenous, with its haulms underground.

Cardamoms thrive in a light soil, a sandy loam devoid of clay, but if it should prove too stiff, river sand and paddy husk mixed will confer the friability desired. Shade may be dispensed with at high elevations, but in the low country and in a lesser degree in altitudes ranging from 1,800 to 3,500 feet, it should be retained. If the shade is too dense, the stalks from the rhizomes will be few, but if sunlight be moderately admitted, they will increase amazingly to the number of 70. If exposed too freely to its influence on the other hand, the plant will languish. Each stalk produces a peduncle from 1½ to 2½ feet in length, on which capsules appear, ranged alternately on the shaft at a distantce of 2½ or 3 inches from each other. Appearances, however, cannot be relied upon in estimating the crop, for the plant has an excess of moisture, and the fruit will dry down to a fifth of what it weighs in the green state.

Where the cardamom is spontaneous, of course the garden will be irregular, but if laid out, the plants should stand at a distance of from 8 to 12 feet apart, in holes a foot deep and 20 inches square, and so planted that the soil around them may be from 4 to 6 inches above the surrounding soil to prevent injury from wash.

Insects are very liable to attack the rhizome in its tender state. They should be picked off early in the morning, and kept away by sprinkling wood-ash, lime and soot, or sulphur on the surface.

Young bulbs from a year to two years' old are the best to use, and should not have the tops trimmed. They should be just covered with soil, and a little shade around them when sprouting, for a week or so, is desirable. It is a mistake to bury them too deep, and equally so to change them every fifth or sixth year, on the assumption that they will not fruit freely, unless this is done. But after use for three years, the bulb should be pruned, that is, all the decayed parts cut out, and if those thus treated are replaced in fresh soil and manure mixed with it, new bulbs will take their place.

Plants raised from seed are the best with which to stock a plantation, but germination is exceedingly slow, and, therefore, risky, taking from three to five months, and the seedlings will be fit to put out in a year. In its natural climate and in good soil, the cardamom fruits in the second year, and bears a full crop in the fourth. Each plant will harvest a quarter of a pound; and the 60 to an acre, which is the number at the distance apart above prescribed, will return 15 pounds of dry spice per acre. The stalks, as soon as they have matured their fruit, die down and are replaced by fresh ones, and this goes on, year after year, for an indefinite period.

Crop is ready for gathering when it turns yellow, and young children with long finger nails are the best to employ for the purpose, avoiding the use of the scissors. Under-ripe capsules should be separated from the over-ripe, or the latter will discolour the former when drying, and all should be washed before drying. The unripe will be all the better for a momentary immersion in boiling water, and acquire the straw colour so much desired in the capsules. No delay should occur in drying cardamoms, if the weather should be unfavourable for doing it in the open air. A room with a fire place should be fitted up for the purpose. Cardamoms undergo a process of bleaching for market, which is tedious and costly. It consists in exposing the capsules to the action of sulphur fumes, which has the

effect of transferring their dingy grey to a delicate pale straw colour.

In England the price of the spice varies between 8*d.* and 5*s.* a pound, and Ceylon is the principal source of supply at present, besides Malabar and Coorg.

CEYLON TEA IN THE STATES AND CANADA.

SINCE his return to Colombo, we have had the opportunity, says the *Times of Ceylon*, of having a very interesting thumb-nail interview with Mr. J. A. Henderson, of the firm of Messrs. Tarrant, Henderson & Co., in the course of which we directed our enquiries chiefly to matters connected with the development of our tea trade with America, a subject in which Mr. Henderson is specially interested, and, in fact, so much interested that he went the length of visiting the country, thus changing to a pretty considerable extent what was originally only intended to be a pleasure holiday away from Ceylon. Mr. Henderson, after a short time in England, travelled first to Canada and practically began his tea trade inquiries at Montreal. There Ceylon tea did not seem to have caught on very greatly—a fact which he attributes largely to the national characteristics of the people residing in that part of the Dominion, who, as our readers know, are mostly French. Still, our tea was decidedly doing well; and the trade showed signs of marked improvement compared with when he was there four years ago. From Montreal he journeyed to Toronto, where he found our staple being absorbed in surprisingly large quantities. Remembering the trade of four years ago, he was astounded at the development that had taken place; and in this connection he speaks in terms of the very highest eulogy of the work which our Commissioner (Mr. Mackenzie) and Mr. Blechynden have been carrying out. He says in Toronto they have thoroughly inculcated a knowledge and a liking for Ceylon tea; and our tea there is now certainly booming.

A GOOD WORD FOR MR. LARKIN.

In this connection Mr. Henderson recognised the good work which had been carried on by Mr. Larkin, of whom he speaks in the very highest terms, his remarks about him being that he is a thoroughly up-to-date, wide-awake Canadian, full of energy and go, deeply impressed with the superiority of Ceylon tea, and determined to push the tea wherever he can in the Dominion and even outside it, for Mr. Henderson told our reporter that he understood that Mr. Larkin had a tea house as far south as Philadelphia, which, just at the time Mr. Henderson was in Canada, was not so successful as Mr. Larkin had hoped it would be, but which Mr. Henderson advised him to hold on to as it was pretty certain to develop into something good later. Mr. Henderson adds that Mr. Larkin's business is one entirely confined to tea. It is no grocer's shop, where sugar and treacle are vended as well as the cup that cheers. It is a house of the Cooper, Cooper kind, dealing in nothing but tea—and that Ceylon tea—while his machinery is all of the very latest type.

A GRIEVANCE THAT WAS IMAGINARY.

In Toronto, Mr. Henderson, in talking with some of the trade on the subject of Ceylon tea in Canada, had the remark made to him that they felt that they were handicapped by the fact that certain firms were to an extent subsidised by the Ceylon-Indian Commissioners, and they did not enjoy similar advantages. He thought that nothing more had been done by Messrs. Mackenzie and Blechynden than they had done with every other dealer who is agreeable to spend money in advertising. Ceylon tea, namely, they had assisted out of their funds with sums to enable such dealers to spend in advertising, and Mr. Henderson advised his agents to make application to them for similar aid. There is no doubt the firm has since received it, and so will not feel the result of the handicap any longer. From Toronto Mr. Henderson went to London (Ontario) and thence to Niagara, where he had a good time inspecting the Falls and other places of interest in the neighbourhood, and after a short stay there he returned to New York, where, he says, he found Ceylon tea was making very steady headway. Messrs A. E. Nicholson & Co. are selling a much larger quantity than they formerly disposed of, while a capital business is being done by Messrs. A. R. Robertson & Co., both of whom represent Ceylon houses.

THE TEN-CENTS DUTY.

Speaking of his trip to America as a whole, Mr. Henderson said: "Of course we are heavily handicapped by the fact that there is a 10-cents duty on tea and no duty on coffee. This naturally prejudices the sale of our tea, or, for the matter of that, any tea that is imported into the country; and we ought to make it our business to get tea put on the same basis as coffee. America is essentially a coff drinking country, and if that product is admitted duty free while t duty is maintained on tea it is likely to continue so. Our aim mu be to have the two beverages treated alike. My experience of t whole trip, however, has been that I found Ceylon tea was very mu more on the go in America now than it was four years ago, a that fact, I think, is to be entirely attributed to the excellent wo which the Ceylon and Indian Commissioners have carried ou When I was there, four years ago, Ceylon tea was practically u known, but now it is known and largely used and is a fashionab beverage." Prior to his visit to America Mr. Henderson went a trip

THROUGH HOLLAND,

just before the festivities took place in connection with the accessi of the young Queen Wilhelmina; and he made inquiries as to o tea at Amsterdam and Rotterdam, but found that the teas prin pally used there came from Java and China—the Dutchmen natural preferring their own countrymen's product as far as the Java t was concerned. There was very little Ceylon tea being used ther but still it was apparently making slight headway. Mr. Henders also did

A TOUR OF GERMANY,

going first to Bremen and to Hamburg, where he made inquiries his firm's agents, which showed that our supplies to the Fatherla were increasing considerably. He journeyed to Berlin, and fro Berlin on a pleasure trip, which he then indulged in, to Dresde and down the Rhine. He believed tea was being very freely drun though, when asked if, in visiting any Thee Haus and asking for t he was supplied with the Ceylon article without special request, answered laughingly, "No, like most Englishmen I have a certa awesome feeling in regard to continental tea houses." Howev the result of his trip through Germany showed what a very gre deal could be done in the way of advertising Ceylon tea in t country; and he hopes that this will be done.

CEYLON MEN AT HOME.

Mr. Henderson had not much to tell in regard to his experienc in England, where he was holidaying for the most part, but among other Ceylon folk that he met were Mr. Donald Noble, who is n settled down in London, and who, he said, was looking very fi Col. Sadler of the Army Ordnance Staff, who is now stationed Woolwich, being one of the officers in command of the Arsena Mr. G. J. Jameson, whom he met in the city, apparently in the be of health; Mr. Fitzclarence, who was formerly a proprietary plant in Ceylon, and who said that he was longing to pay a return trip the island; Mr. Forbes Laurie; Mr. Geo. Hedges, who mention incidentally that he was coming back to Ceylon very shortly for brief visit; and Mr. R. A. Bosanquet, who had just arrived hon when Mr. Henderson met him in London.

COLOMBO MARKET *vs.* THE LONDON MARKET.

In leaving Mr. Henderson, our reporter asked him if he visited t London tea market, and, on learning that he did, put a question to what Mr. Henderson thought of the value of that market as com pared with Colombo. He replied:—

"My opinion may appear to be more or less biassed, but I neve theless think the Colombo market is very much better than th London market. In London, the trade has now practically got in the hands of a few big buyers like Lipton, Brooke Bond & Co., th Mazawatte Company, the Home and Colonial Stores and the Whol sale Co-operative, who have knocked a lot of the smaller men ou The consequence is competition has been reduced, whereas, in th Colombo market, as far as buyers are concerned, the number h increased far more rapidly than has the quantity of tea locally offered

CHINA *vs.* CEYLON AND INDIA TEA.

THE *American Grocer* publishes the following very interestin paper:—

There is no small controversy over the relative merits of Ceylo India, China, and Japan teas. The advocates of each seeming forget that there are good and bad teas of all growths; that ind vidual tastes differ; that the American people are not particularl fond of tea as a beverage, and that not one in a hundred consume brew tea in a right manner or use it without "trimmings."

One cannot fail to admire the pertinacity and skill which ha marked the efforts of those interested in making a demand fo Ceylon and India teas, and whose work has been so effective that has forced the tea industry of Japan to enter upon a campaign

PEIRCE, LESLIE & CO.

CALICUT, COCHIN, TELLICHERRY, MANGALORE.

LONDON OFFICE:— 14, BILLITER STREET, E.C.

CALICUT PRICE LIST
OF
ESTATE REQUISITES AND MANURES.

N.B.—We are prepared to indent home for any and all kinds of estate requirements not kept in stock or enumerated in this list.

	Rs.	A.	P.
ESTATE TOOLS—			
Round Eye Felling Axes (steel), 4 lbs. weight per doz. ...	20	4	0
Do. do. do. 2½ „ „ „ ...	15	0	0
Pick Axes, 6½ lbs. (well steeled) ... ... „ ...	16	8	0
Bill Hooks, (Barcutties) 12″ blade, bright steel „ ...	18	0	0
Do. Kentish, with back, steel, 2¼ lbs. wt. „ ...	16	0	0
Bushel Measures (Galvanized), Imperial Stnd. ...each ...	15	0	0
Watering Cans, (Galvanized) "Nonsuch," 2½ gals. each...	4	8	0
Do. do. do. 2 „ ...	4	0	0
Steel Digging Forks. *Steel strapped all along handle.* 4 & 3 pronged per doz. Rs.39-0-0 &	33	0	0
Grass Knives, socket handle, steel ... per doz. ...	12	12	0
Hammers, 6, 7, & 8 lbs. ... ... per lb. ...	0	6	0
Handles, Digging Fork ... ... each ...	0	14	0
Lining Ropes, Tarred Russian Hemp { abt. 600 feet. ... „ ...	17	0	0
„ 300 „ ... „ ...	8	8	0
Mamooties, Steel 10″x 8″ & 9″x 7″ abt. 4 lbs. wt. per doz. ...	12	12	0
Do. Iron 10½ x 8½ & 9½ x 8 abt. 3¾ lbs. wt. „ ...	7	8	0
Quintanies, Steel 15″ × 6,″ 5½ lbs. weight ... „ ...	18	0	0
Do. 9½″ x 5,″ 3¼ „ „ ... „ ...	14	4	0
Manure Pans, (Galvd.) 8″ deep x 18″ top x 10″ bottom „ ...	23	4	0
Pitting Bars (Alavangoes), well-steeled points, 3″ spade end, 45″ long, 9 lbs. weight... ... „ ...	16	8	0
3″ do. 36″ do. 6½ do. ... ... „ ...	12	12	0
Pruning Knives, English make, best steel, 4″ blade „ ...	9	0	0
Do. Saws, do. do. 14″ „ ...	18	0	0
Seamless Bags (for coffee transport to coast) 42″ x 20″ „ ...	9	12	0
Shovels, round nose, T handle ... ... „ ...	12	12	0
Tea Transplanting Spades, steel, sharp edges... each ...	2	8	0
Tea Transplanters.—Made to Planters' Samples.			
TEA PACKING REQUISITES, Etc.—*(For Nails see opposite.)*			
Chests Full 24 x 19 x 19 (outside) ½ in. planks each...	1	1	0
Half 16 x 16 x 16 („) do „ ...	0	13	0
Quarter 14 x 12 x 10 („) ⅜ do „ ...	0	9	3
Deld. Metapol., Palghat, Calicut. Any dimensions, proportionate prices.			
Lead—BEST INCORRODIBLE. 4½ oz. Per case of 2 cwts:—			
127 sheets 37″ x 22″ ... ... „ ...	32	0	0
240 „ 25″ x 19″ or 93 sheets 65″ x 19″ „ ...	32	0	0
586 „ 14″ x 14″ ... ... „ ...	30	0	0
50 „ 84″ x 22″ for sides } 100 „ 21″ x 16″ „ tops and bottoms } „ ...	30	0	0
Hoops, Steel ½″ (abt. 3,000 feet to the cwt.) ... per cwt. ...	15	0	0
Solder (Sticks) per case of 1 cwt. Rs. 50, or per lb. ...	0	8	0
Soldering Fluid ... ... per bottle ...	2	0	0
Do. Irons ... ... each ...	2	0	0
Stencil Ink black, in round tins... ... ... „ ...	1	0	0
Do. Brushes ... ... „ ...	0	12	0
Tea tasting Pots and Cups ... ... per doz. ...	10	8	0
Tea Sieves, brass No. 6, 8, 9, 10, 12 mesh each ...	6	0	0
Do. do. bottoms do. „ ...	3	8	0

	Rs.	A.	P.
WINDOW GLASS—per case of 100 sq. ft. (all sound) ...	15	0	0
12×10 (120 panes), 16×14 (64), 18×14 (57), 22×18 (36), 24×20 (30), 28×24 (21), 36×24 (17) and 36×30 (13).			
COFFEE PULPERS—*To order only. One month required for delivery.* Agents for:—MESSRS. WALKER SONS & CO., LD.			
COIR MATTING—Per rolls of 60 feet long x 3 feet wide:—			
* Machine-made Yarn:—Superior Rs.15; Fine	12	8	0
* Ordinary Twill Bungalow	7	0	0
No. 1 Estate, Double (for coffee drying, etc.)	2	8	0
„ 2 „ „ (do.)	2	4	0
Shade (for nurseries, ferneries, &c.)	2	0	0
* *Coloured stripes to order. Samples on application.*			
ASPHALTE—			
In barrels of 6¼ to 8½ cwts. gross (tare 56lbs.) per cwt. net...	4	0	0
PORTLAND CEMENT—John Bazely White and Bros.			
"Whites" Best ℔ barrel of abt. 375 lbs. net ...	11	12	0
Sole Agents for S. Canara, Coorg, Malabar, Coimbatore, Travancore.			
COAL TAR—			
Best ℔ barrel of abt. 4 cwts. gross (net about 3¼ cwts.)...	20	0	0
GALVANIZED IRON—			
Continuous Iron. For roofing, etc.			
In rolls of 100 ft. x 2 ft. 28 G. (per ft., 7 as.) per roll ...	35	0	0
Nails 1 in. flat headed for fixing the above per 1,000 Nails...	1	5	0
Corrugated Iron (English), 24 G. 2 ft. wide ... per cwt....	11	0	0

Lengths in feet	5	6	7	8	9	10	
Sheets to the cwt. (abt.)	8·25	6 95	5·85	5·10	4·55	4·10	
Selected sheets Rs.	1/9	1/12	2/1	2/6	2/10	2/15	each.

Iron Ridging, 6 ft. x 6 inch lap. ... ... per length...							1	8 0
Bolts and Nuts, ¼″ x ¾″ ... ... per gross ...							1	14 0
Rivets ... ... „ ...							0	12 0
Washers, Iron ... ... „ ...							0	10 0
Do. Lead ... ... „ ...							1	2 0
Screws, 2½ in. ... ... „ ...							2	4 0
Lead headed nails, 2½ in. ... ... „ ...							2	12 0

NAILS—Wire, French.

℔ 1 cwt. keg	1″	1½″	2″	2½″	3″	4″
	Rs. 13/12	11/8	11/	10/8	10/	9/8
℔ pound annas	2¾	2½	2¼	2¼	2	1¾
Nails ℔ lb. (*abt.*)	600	250	150	100	50	30

Triangular Barbed Wire Nails.

℔ 1 cwt. keg	1″	1½″	2″	3″	4″
	Rs. 11/4	9/8	8/12	8/0	7/8

LUBRICATING OIL FOR OIL ENGINES:—				
A blend of the finest and best oils.				
In drums of 5 Imperial gallons ... ... per drum ...	15	0	0	
PERMANGANATE OF POTASH ... ... per lb. ...	1	6	0	
Used by the Medical Authorities for purifying wells, drinking water, etc.				

MANURES.

Fish Guano. Steamed Bone Meal. Poonac:—Castor, Mowra, Hoongay. **Saltpetre, Crude and Refined** (Nitrate of Potash.) **Nitrate of Soda. Sulphate of Ammonia. Sulphate of Potash. Muriate of Potash. Superphosphates. Phosphate Powder. Kainits Salts.**

Mixtures can be made in any proportion without extra charge. **Packing** can be done to suit transport by bullocks, etc.

Prices will be furnished on application for delivery either at our Karaparumba Works, Calicut, the Calicut Railway Station, Palghat, Mettapollium, Salem, or at our godowns in Cochin, Tellicherry, Mangalore and other places.

Quotations will be obtained and orders booked for any Manures not kept in stock. F.r.m.

advertising in the interest of Japan and Formosa teas as an offset to the publicity given to Ceylon and India leaf.

Recently a correspondent of the New York *Journal of Commerce* wrote as follows:

So much appears in print now advertising India and Ceylon teas, and claiming greater purity for them than for China teas, that it is only fair to the public that the true situation should be told them as it exists at the present time.

Some of the first Ceylon and India teas exported were very fine, but the quality of the present exports from those countries is far below what it was at first, while the quality of the China tea has for the past year or two steadily improved. This country is a large consumer of China tea, and the present laws of our Government tend to prevent the import of poor teas; but whatever causes have brought about the present situation, the actual facts regarding the relative qualities of teas from those countries should be made known to the public.

Recently, in making an extensive drawing of teas from Ceylon and India, averaging about 25 cents per pound duty paid, in price, and a like drawing of Formosa Oolongs and Congous from China, the fact was most apparent that the China teas were decidedly clearer in water and without the muddy liquor of the India and Ceylons, and were also of decidedly better flavour and quality.

Advertising is very well in its way, but the facts which I present cannot be controverted; and in my judgment the consumers of the United States can in the future look for better and purer teas from China than from India.

E. A. Willard.

This called forth from a prominent jobber of tea the following letter to the same journal:—

During the last few days we have noticed in your valuable paper some interesting letters headed "China *vs.* Ceylon Tea." It is seldom we take the trouble to express in print an opinion on such matters, but in this instance we feel compelled to do so, because some of the statements made in recently published articles are not in accordance with facts.

Although we continue to do a large business in China tea, we are forced to carry a large stock of both India and Ceylon tea, because most of our customers will have them, and the demand is largely on the increase, especially among those buyers who appreciate quality and will pay a fair price.

It has not been our experience that Ceylon teas are deteriorating in quality, but, on the contrary, they have never been better than at the present time.

It is not our business to do "missionary work," but to meet the demands of the trade as we find them. The rich drinking qualities of Ceylons are certainly appreciated by lovers of good tea, and will eventually materially increase the consumption to the detriment of China teas.

Thomas Reid,
Vice-President Eppens, Smith & Wiemann Co.

We have received the following letter on this subject from Messrs. Thomas Martindale & Co., Philadelphia, the blenders of "Caricol" tea, who formerly did not look with favour upon Ceylon or India tea, while now they are the most enthusiastic of advocates:—

Philadelphia, *Nov.* 9, 1898.

Editor, *American Grocer.*

I have read with interest a letter upon "China *vs.* Ceylon Teas" in the N. Y. Journal of Commerce from a tea broker relative to the comparative merits of China and Ceylon and India tea. Only a few years since, I was a bellever in the theory that Ceylon and Assam teas were too strong, too rich in tannin—"too rich for onr blood," in fact—in this dry electrical climate of ours; but I couldwell understand the high favour which these teas met with in England, because the wet, damp climate, with its raw benumbing cold in the winter months (that characterizes the major portion of the weather in England, Ireland, Scotland, and Wales) demands just such a nourishing—such a "grateful and comforting" drink as can alone be obtained from a cup of rich, full-bodied and fragrant Ceylon or Assam tea.

In fact in my various visits to the mother country, I was so captivated with their "two-shilling" teas, for instance, that I would bring some home with me for my own table; but I fancied that they did not taste nearly so well here as they did in England, which was probably due to the difference in climatic conditions; but the taste for them grew upon me, and I finally began to experiment with them in our various blends which we sell so largely throughout the United States—at first gingerly and mincingly—fearful of making m takes; but as popular approval, in the shape of increased sales a enthusiastic commendations, followed upon each increase of t proportions in which we used them in the "blends," we have fina reached a point that we never dreamed of, and that is to say th very nearly half of the stocks of black teas which we now carry our warehouses are of Ceylon or Assam growth. Nor can this called a matter of partiality either, because we find that their u now in our blends is imperative—we could not well discontin them if we would.

If any dealer doubts the value of our experience in this respect, him start, say with an addition to any of his black or mixed teas but 10 per cent. of good Ceylon or Assam tea, then let him bide t result, and when popular approval does surely show itself, let h then gradually increase this proportion until he has, say, a third good Ceylon, a sixth of Congou, and the balance of Foochow Oolon and let him note the pleased looks of his customers as they co back for more of "that very same tea" which they got before—" was just splendid."

We candidly admit that the mixture of these teas in our "Carico blend has more than trebled its sales, and that not alone in territo like the coal regions of Pennsylvania (where a heavy-bodied tea always in vogue), but in all parts of the country, in the Far W where pan-fired and basket-fired Japans are the rage, and in t South where Chinese greens are used largely, as well as in N England where the people are partial to straight Formosa Oolong, that I am sure the time has come when the Chinese and Japan tea-growers may well look with apprehension upon their vanishi trade, not alone in England, but in America as well.

Thomas Martindale

The facts are that the imports of India and Ceylon tea into t United States, both direct and indirect, show a notable increase fr year to year. Nearly every retailer is forced to keep Ceylon a India tea in stock, while every blender recognites their intrin merit. The people have been slow to acquire the correct method brewing, lacking faith in the statement that one-third or less Ceylon or India tea was required than of China or Japan sorts make a satisfactory infusion, and that the tea should be steeped o three to five minutes. Failure to observe the proper directio naturally resulted in a heavy-bodied tea of sweetish flavour, entir foreign to that which American tea-drinkers for a century have be accustomed, and, therefore, they have been slow to change fr China or Japan tea to Ceylon or India. The trade, by blending, h done much to overcome this difficulty, and paved the way for a larg use of straight Ceylon and India tea, the finer grades of which a light-bodied and of more delicate flavour than medium and low grad

Lovers of the fragrant leaf, particularly such as have a ke unpreciation of flavour, will always be wedded to the best teas of countries. Fortunately, among 75,000,000 people, there is su a variety of taste and desire, that there is a big enough market f all sorts of tea. The signs of the time point to an enlarging dema for fine tea, and greater attention on the part of consumers to flavo and body and to the use of tea without milk or sugar. Ceylon a India teas show the same wide range of quality as China and Jap while growers in all countries are more than ever studying t world's markets and curing their tea in a way calculated to m perfectly meet their requirements.

DISTRICT ASSOCIATIONS.

WYNAAD.

Proceedings of a General Meeting held at Meppadi on 14 December, 1898.

Present:—Messrs. J. W. Hockin (*Chairman*), B. M. Beb E. H. F. Day, R. Lamb, C. C. Lance, D. Mackenzie, W. MacKinla S. Robinson, G. Romilly, and E. DeFonblanque (*Hony. Secy.*)

Proceedings of last Meeting.—The Proceedings of the last meeti were taken as read.

Roads.—Read letter from the District Engineer on the subject the Palipoya bridge. *Recorded with satisfaction.*

Plague.—Proposed by Mr. D. Mackenzie, *seconded* by Mr. G. Romill that the Collector of Malabar be asked whether special arrangemen might not be made to provide a sweeper for Meppadi Bazaar so lo as there is danger of plague. *Carried.*

BREECHES TRADE.

Breeches-making is a *specialité* with us. **Mr. Smith**, the proprietor, deals with every pair, and we warrant turning them out to satisfaction as regards fit, style and workmanship.

OUR SPECIAL

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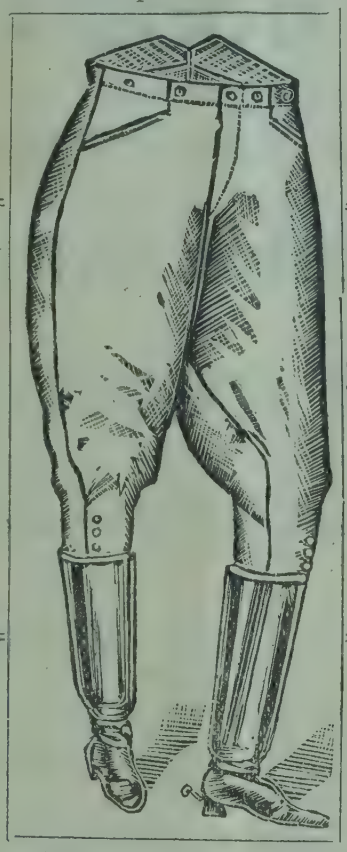
8/8 BREECHES.



Putties 8 ft. long
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Box Cloth Leggings
Rs.9.

Newmarket
Leather Leggings
Rs.12.

Read this letter; it will convince you that we *can* make Breeches. **Mr. H. S. Dickins,** of Yercaud, writes: "*The Breeches received; they fit me perfect. I can, with confidence, recommend you as Breeches Makers to all my friends. We get our kit from Bombay, and have to pay about double your price.*"

[w. 1-10-98—31-3-99.] **E. D. SMITH & CO., MADRAS.**

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VIEWS OF SOUTHERN INDIA.

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[w. 15-10-98—14-1-99.]

THE INDIA TRADING COMPANY, Limited,

AGENTS FOR **MADRAS,**

Messrs. HIERON ROLFE & CO., LONDON.

ORDERS BOOKED FOR

BEGG'S PATENT TEA ROLLING MACHINE £95.

PACKING AND SHIPPING £3-10.

THIS machine has been in use for some years past on private estates in Assam, and the excellence of the tea manufactured thereby is proved by the good prices obtained, and the reports characterise the teas as being "good *tippy* teas, with strong pungent liquor, and well-twisted leaf."

The roller adapts itself to any class of leaf, and can be used, if desired, as an open top machine, or pressure can be applied as lightly or heavily as necessity may arise by means of a simple mechanical arrangement. The twist in the leaf is obtained to a degree of nicety without balling, no breakage occurs, and is kept cool throughout. The tips are not blackened by the oxidation of the juice from the leaf.

The low price of the machine will allow planters to obtain an excellent leaf roller at a very moderate figure, and thus be enabled to supplement their rolling plant, which in so many cases is insufficient.

The machine is very easily driven, absorbing about 1½ h.p. only when fully charged. The mechanism is exceedingly simple, and nothing can get out of order. All parts are made of the best material, and good workmanship guaranteed. It will take 300 lbs. of withered leaf at a time, and is easily and rapidly filled and emptied.

TILESTONITE.

A new covering for corrugated iron roofs and walls.
Invaluable as a Heat-, Fire-, and Water-proof covering for Withering-Houses, Fermenting Rooms, Offices, &c.
Makes a clean, fireproof floor for an upper sorting or withering department.

Further Particulars on application to the India Trading Co., Ld., Madras.

Sale of Estates for Arrears of Revenue.—*Read* letter from the Collector of Malabar stating that instructions had been given that all notices of estates for sale for arrears of revenue should be printed in English as well as in Malayalam. *Recorded.*

Non-service of Warrants.—*Read* letter from Mr. H. Waddington. *Recorded.*

Petty Cash.—*Read* letter from Deputy Tahsildar. *Recorded.*

Pudu Padi Hotel.—The new rules were submitted to the meeting and passed.

Exchange.—*Read* letter from Mr. Gompertz on the question of Exchange. It was decided that no action should be taken in the matter.

A vote of thanks to the Chair closed the Proceedings.

E. DEFONBLANQUE,
Hony. Secy., Wynaad Planters' Association.

GEO. HODSON,
FLORIST AND SEEDSMAN,
By Appointment to H.E. The Governor of Madras,
RESIDENCY ROAD, BANGALORE.
Telegrams: **HODSON,**
Bangalore.

Fresh Flower and Vegetables Seed. Acclimatized Seed. Standard and Dwarf Roses. Fresh Grevillea Robusta, Albizzia Molucanna, and other Tree Seeds suitable as windbelts or shade.

Terms—CASH or V.P.P.
Seeds not in stock procured at shortest notice.
[w. 3-9-98—t.f.o.]

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BUY SAVEGE & CO'S
CURRY POWDER OR PASTE
AND YOU CAN ALWAYS HAVE IT A
27, MOUNT ROAD,
MADRAS
N.B.—Special List for Planters' Medicines, &c.
[w. 19-11-98—18-2-99.]

ENGLISH TAILORING HOUSE
Mount Road, Madras.
THE CHEAPEST HOUSE FOR
Gents' Dress in India

Flannel Suits	Rs.	25.
Serge Suits	,,	22 to
Thick Tweed Suits	,,	25 to
Viyella Flannel Shirts	,,	7
Do. Sleeping Suits	,,	15

A Trial is solicited.
[w. 3-12-98—t.f.o.]

MARKET REPORT.

COFFEE.

Messrs. Wm. Jas. & Hy. Thompson's Report of the Colonial Markets for the Week ending November 30th, 1898, says :—

We have no change to report in this article, which continues very quiet, and with little demand, a large proportion of the quantity offered has been withdrawn, only desirable colory kinds meeting with competition at about previous rates.

Daily receipts averaged 6,000 bags in Rio and 12,100 bags in Santos.

Futures have been generally firmer, and closing prices shew an advance of 6d to 9d per cwt., viz. :—Good average Santos in Havre, March delivery, fcs. 39.25, in Hamburg pf. 32¼, and No. 7 low ordinary Rio in New York $5.85.

To-day's London official quotations are :—

	Dec.	Mar., '99.	May.	July.	Sept.	Dec.
SANTOS ...	31/	32/	32/6	32/9	33/3	33/9

We quote :—

Ceylon, mid. to good mid.	102/	@107/	
Do. small to low mid.	79/	„ 99/	
East India, mid. to good mid...	71/	„ 91/	
Do. small to low mid.	57/	„ 71/	
Guatemala, mid. to fine...	63/	„ /101	
Do. good ord. to low mid...	37/	„ 62/	
Salvador, good ord. foxy greenish...	37/	„ 40/	
Costa Rica, mid. to fine...	67/	@104/	
Do. ord. to low middling.	37/	„ 64/	
Jamaica, good to fine ord.	31/	„ 48/	
Do. greenish to fine colory...	61/	„ 120/	
African ...	26/	„ 28/	
Columbian, ordinary ...	36/	„ 43/	
Do. good ord. to low mid...	42/	„ 63/	
Do. mid. to fine...	65/	„ 102/	

Receipts in Brazil to 30th November compare as follows with previous years :—

	1898-99. Bags.	1897-98. Bags.	1896-97. Bags.
RIO ...	1,568,000	2,358,000	1,863,000
SANTOS ...	3,298,000	3,972,000	3,179,000
	4,866,000	6,330,000	5,042,000

Auctions—

606 bags Costa Rica, part London cleaned, part new crop ...	30/	@	80/
3,620 bags Guatemala part London cleaned, part sold ...	32/	„	76/6
612 bags Venezuelan bought in.			
2,328 bags Vera Paz and Coban, part sold	25/	„	65/
261 bags Mexican, part London cleaned, part sold ...	27/6	„	46/6
55 bags South Sea Islands	27/6	„	40/
1,736 bags Salvador, small part sold	37/	„	—
148 bags Nicaragua	36/	„	—
2,149 bags Columbian, part London cleaned, good part sold	32/	„	85/
173 bags Nyassaland, London cleaned, chiefly sold ...	48/	„	72/
26 bags Bolivian „ bought in.			
15 bags Peruvian bought in.			
85 barrels 114 bags Jamaica, partly sold	31/6	„	40

Landed last week ... 253 *tons. Deliveries* ... 781 *tons. Stock*...16,501 *tons.*
Do. last year ... 486 „ „ ... 479 „ „ ...10,045 „

HIGH CLASS TAILORING.

We have now secured the services of Mr. W. J. Marden, whose experience as a Cutter and Practical Tailor extends to a period of over 20 years in some of the leading houses in England and India, and whom we can, therefore, confidently recommend as a veteran expert cutter. Having placed our Tailoring Department under his control, we guarantee perfect Fit and Style. This assurance, coupled with our proverbially Cheap Rates, will, we trust, induce you to give us a trial order, which we respectfully solicit.

FREE CHRISTMAS GIFTS.

We are giving away 4 Bicycles and 200 useful Prizes. Numbered Ticket is given for the purchase of every 2 Rs. worth of goods. Drawers of the lucky numbers will receive the prizes free.

ROYAL EMPORIUM,
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[w. 3-9-98—t.f.o.]

Agents for LEA & PERRINS' WORCESTERSHIRE SAUCE.

CROSSE & BLACKWELL'S, LTD.

By Special Warrant Purveyors to **The Queen AND Empress of India.**

CELEBRATED OILMAN'S STORES.

[w. 1-10-98—t.f.o.]

TEA.

Messrs. Gow, Wilson and Stanton's Indian, Ceylon, and Java Tea Report, dated December 2nd, 1898, states :—

QUANTITY BROUGHT TO AUCTION IN LONDON

FROM 1ST JUNE TO DATE.

	Indian.	Ceylon.	Java.
1898-1899.	831,520 pkgs.	606,690 pkgs.	23,460 pkgs.
1897-1898.	800,098 ,,	625,448 ,,	21,961 ,,

50,163 pkgs. Indian
16,431 ,, Ceylon
1,464 ,, Java.
} Total 68,058 packages were offered in public auction this week.

The quantity of British Grown Tea taken in North America during the first nine months of the past four years was :—

1898.	1897.	1896.	1895.
lbs. 9,735,471.	8,464,749.	5,562,694.	5,420,935.

[From 1st January to 30th September.]

INDIAN.

	1898.	1897.	1896.	1895.
Re-exports from U. K. ...	1,462,286	1,324,539	897,534	1,272,111
Transhipments ...	855,307	2,304,420	1,526,995	1,110,644
Direct Exports via China ...	385,811	280,289*abt*	100,000*abt*	30,000
Direct Exports from Calcutta.	780,266	nil.	nil.	nil.
Total lb. ...	3,483,670	3,909,248	2,524,529	2,412,755

CEYLON.

	1898.	1897.	1896.	1895.
Re-exports from U. K. ...	2,653,755	2,581,965	1,963,264	2,051,99
Transhipments ...	1,141,238	1,504,068	856,549	720,58
Direct Exports via China ...	852,173	469,468	218,652	235,60
Direct Exports from Colombo.	1,605,635	nil.	nil.	nil.
Total lb. ...	6,252,801	4,555,501	3,038,465	3,008,18

Indian. The continuance of heavy sales has proved a severe stra upon the market and resulted in less general competition with weak prices.

Ceylon. The small auction passed with good spirit for Teas of t lower grade, while the recent reduction in price of Teas over 9d. attracte buyers and caused some increase in competition.

Average for the week 8·20d., against 8·65d. same period 1897.

Ceylon Tea sold on Garden Account 1st Jan. to date 1898, 1,028,366 pkg av. 7·75d. 1897, 995,696 pkgs., av. 7·78d.

	1898.	1897.	1896.	189
PEKOE SOUG. (Ordinary leaf; fair liquor) ...	6½d	6½d	6¼d	6¼d
PEKOE. (Ordinary leaf; little twist; fair liquor) ...	7¾d	7½d	7¾d	7¾d
PEKOE SOUG. (Rather bold leaf; indifferent liquor) ...	5¼d	5d	5d	5¼d
PEKOE. (Somewhat bold leaf; indifferent liquor) ...	5¾d	5¾d	5¾d	6d

Java. With a fair selection the market was steady.

MOVEMENTS of TEA in LONDON (in lbs.) during NOVEMBER from TEA BROKERS' ASSOCIATION FIGURES

	IMPORTS.			DELIVERIES.		
	1898.	1897.	1896.	1898.	1897.	1896.
INDIAN	22,792,453	19,713,738	15,693,705	13,855,883	12,325,078	12,539,333
CEYLON	6,609,646	5,601,246	7,019,558	7,779,500	8,270,390	7,144,488
TOTAL lb. ...	29,402,099	25,314,984	22,713,263	21,635,383	20,595,468	16,683,821

From 1st June to 30th November.

	IMPORTS.			DELIVERIES.			STOCK.		
	1898.	1897.	1896.	1898.	1897.	1896.	1898.	1897.	1896.
INDIAN	84,921,723	81,116,441	79,875,589	69,111,968	60,839,978	59,423,100	53,883,543	51,971,675	47,203,09
CEYLON	48,704,418	47,932,150	46,107,556	48,645,394	50,906,054	46,707,162	17,052,318	16,979,276	17,957,92
TOTAL lb. ...	133,626,141	129,048,591	125,983,145	117,757,362	111,746,032	106,130,262	70,935,861	68,950,951	65,161,02

PUBLIC SALES FOR SOUTH INDIAN TEA.

(AVERAGE FOR ALL INDIA 8·05d.) *December 2nd.*

GARDEN.	Total.	Average.	Broken Org. Pek. or Flowery Pekoe.		Pekoe and Unassorted.		Broken Pekoe.		Pekoe Souchong.		Broken and Souchong.		Fannings, Dust and Various.	
	Quantity	Price.	Quantity	Price.	Quantity	Price.	Quantity	Price.	Quantity	Price.	Quantity	Price.	Quantity	Price.
Neilgherry ...														
Dunsandle ...	50½ c	5¾	...	...	...	...	...	...	50½ c	5¾	...	...	...	...
Travancore ...	70½ c	5·72												
Kinmylies ...	30½ c	6	...	...	27½ c	6	...	...	3½ c	5	...	...	...	...
Mahandragherry ...	40½ c	5½	...	...	34½ c	5¾	...	...	5½ c	5	...	...	1½ c	3¼

COCOA.

No public sales were held yesterday, the market being very quiet, and privately only a small business effected.

We quote—Trinidad, middling to fine red 75s to 78s 0d, gray and mixed red 75s to 76s; Guayaquil, Caraquez 72s 0d to 73s 0d, Arriba 76s to 78s; Ceylon, middling to fine 73s to 79s. Stock 102,200 bags, against 95,143 bags last year.

SULPHATE OF QUININE quiet; a small business has been done at 10d per ounce for spot.

CINNAMON.

At the last auctions of the year, held on the 28th inst., the large suppl of 4,812 packages was offered, divided as follows :—3,931 bales, 859 bag 8 boxes, 14 parcels. These met with a quiet demand, the sale openi fairly steadily for seconds, thirds and fourths, firsts not being well co peted for. As the sale proceeded, the demand slackened, but importe being anxious to meet the market, a good proportion of the supply (2,6 bales and 850 bags) was disposed of. Prices throughout were irregul and generally lower. We quote a decline of ½d to 1½d per lb. on firsts, to 1d on seconds, 1d on thirds, and ½d per lb. on fourths.